BOLEX
INTERNATIONAL S.A.

CH-1450 STE - CROIX / SUISSE

SERVICE APRES-VENTE BOLEX

AFTER-SALES SERVICE

KUNDENDIENST

PIECES DE RECHANGE ET INSTRUCTIONS TECHNIQUES

ERSATZTEILE UND TECHNISCHE ANLEITUNGEN

SPARE PARTS AND SERVICE INSTRUCTIONS

CAMERAS **H16M-RX-SB** **251 501 ⟹**

KAMERAS **H16EBM** **300 401 ⟹**

CAMERAS

H3

EDITION 1971

You are requested to file in this service manual all the corresponding printed matters which you will receive henceforward and to check the information contained therein whenever you wish to compile a spare parts order.

All technical documentation is supplied to your service department on a loan basis and must by no means be handed over to third parties.

BOLEX INTERNATIONAL S.A.
After-Sales Service

CH-1450 Ste-Croix / Switzerland

Every document of this catalogue is composed of numbered "boxes" respectively "columns" containing the following information :

Box No. 1 : The type of document, i.e.

TM = index : white paper

INTRODUCTION : white paper

PD = spare parts sheet : white paper

IT = technical instructions :

FM = modification sheet :

Filing order :
IT are filed after the corresponding spare parts sheets. If there are several versions of the same subject, additional PD may be issued. If no special IT are elaborated, the technical instructions belonging to the original PD are also valid for the additional PD.

FM are filed so as to face the corresponding PD or IT, according to the indication in box 9. **

Box No. 2 : The name of the subject treated.

Box No. 3 : The product to which the treated subject belongs.

Box No. 4 : The serial number indicating the introduction of the subject treated. (Approx.)

Box No. 5 : The trade mark of the manufacturer.

Box No. 6 : The name of the catalogue (see also label on back of folder).

Box No. 7 : The issuing date of the document.
Filing order :
- INTRODUCTION sheets : Of all the INTRODUCTION sheets bearing the same indications in boxes 1 - 6 - 11, only the sheet with the latest issuing date must be kept.

- TM, PD and IT : Of all the sheets bearing the same indications in boxes 1 - 6 - 10 - 11 (1 - 6 for TM), only the sheet with the latest issuing date must be kept.
  ATTENTION : When discarding a superseded sheet, be sure that the corresponding FM are eliminated at the same time !
- FM : Of all the FM bearing the same indications in boxes 1 - 6 - 9 - 11, only the sheet with the latest issuing date must be kept.

Box No. 8 : The language in which the document is printed :

* = trilingual

F = French

D = German

E - English.

Box No. 9 : Space reserved for special indications.

On the FM, this space contains the specifications in box 1 - 10 - 11 - 7 of the PD or IT for which the FM is valid.

Box No. 10 : Letter of tab under which the PD and IT are filed.

On the IT this section is devided into two parts, the lower showing the page number of the PD whereafter the IT are filed.

Box No. 11 : The page number.

Filing order :

- TM, INTRODUCTION sheets, PD and FM : Arabic numerals in numerical order.
- IT : Roman numerals in numerical order.

Box No. 12 :
- On INTRODUCTION sheets : miscellaneous
- On PD : "exploded view" drawings with part numbers
- On IT : text.

Box No. 13 : Sketches illustrating the technical instructions.

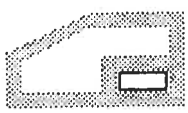
Column No. 15 : The number of the respective modification.

Column No. 16 : The old parts, valid before the introduction of the modification.

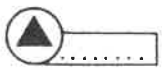
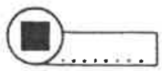
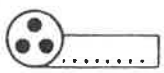
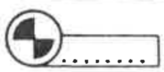
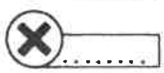
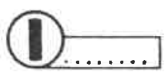
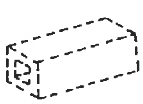
Column No. 17 : The new parts, valid after the introduction of the modification.

Column No. 18 : Explanatory notes.

**) On receipt of a FM, you should rectify immediately the corresponding document.

Sign	Signification
	As a rule, compound parts which have only one or no symbol at all, cannot be dismantled. Their components are, consequently, not available separately.
[.......]	Design available.
(.......)	Part not available.
(.......†)	Superseded design. Available as stock lasts.
(.......✖)	Faulty parts, to be returned for exchange. Cheap parts may be destroyed. Moreover, this sign constrains the repairman to fit the new version on any apparatus equipped with the old one, no matter for which reason the apparatus is submitted to him.
(.......) *	Available for fully equipped service stations.
	Parts appearing in the dotted field are available as an assembly. The respective reference is to be found in a corner of the field.
...X [.......]	Quantity of identical parts going with the assembly.
○[.......]	○ = numbering of the designs (to designate interchangeability).
○[.......] I 2/1 & 3	Part interchangeable. Design ② may be fitted instead of ① and ③.
○[.......] NI 1/2	Part not interchangeable. Design ① cannot be mounted instead of ②.
○[.......] NI 2/1; I 2/3	Design ② is not interchangeable with ① but with ③.
[.......] d=... e=...	Mechanical characteristics (thickness, diameter, size, length, appearance, colour, etc...) enabling you to distinguish the old version from the new one.

Printed in Switzerland

Sign	Meaning
→[ ]	The bracketed parts make the new version interchangeable with the former one.
[.......] z=...	Number of teeth of a gear.
[.......] (N)	Parts to be mounted according to need (for adjustment).
→No.	Design valid up to serial number.
No. ....→	Design valid from serial number.
	Symbol of grease to be applied.
	Symbol of oil to be applied.
	Symbol of glue to be used.
	Symbol of paint to be applied.
	Symbol of mastic to be applied.
	Symbol of thinner to be applied.
	Symbol of solid lubricant to be applied.
	Part shown on another page or in another catalogue.
	Part not available. If shown in a screened area it will be included in the corresponding assembly.

The above mentioned signs do not belong to the spare parts number and may, therefore, be omitted when placing an order.

F) Code de couleurs des fils électriques et gaines isolantes.

D) Farbcode für elektrische Drähte und Isolierhüllen.

E) Colour code for electric wires and insulating tubing.

Code	Couleur / Farbe / Colour
ⓐ	Jaune / Gelb / Yellow
ⓑ	Noir / Schwarz / Black
ⓒ	Rouge / Rot / Red
ⓓ	Vert / Grün / Green
ⓔ	Blanc / Weiss / White
ⓕ	Bleu / Blau / Blue
ⓖ	Orange / Orange / Orange
ⓗ	Beige / Beige / Beige
ⓙ	Rose / Rosa / Pink
ⓚ	Violet / Violett / Purple
ⓛ	Brun / Braun / Brown
ⓜ	Gris / Grau / Grey
ⓝ	Non isolé Nicht isoliert Not insulated
ⓞ	Aluminium (gainage transparent) Aluminium (durchsichtige Isolation) Aluminium (transparent insulation)
ⓟ	Cuivre (gainage transparent) Kupfer (durchsichtige Isolation) Copper (transparent insulation)

F) Afin d'en faciliter la lecture, nous vous recommandons de retracer sur les plans de câblage les fils avec leur couleur correspondante.

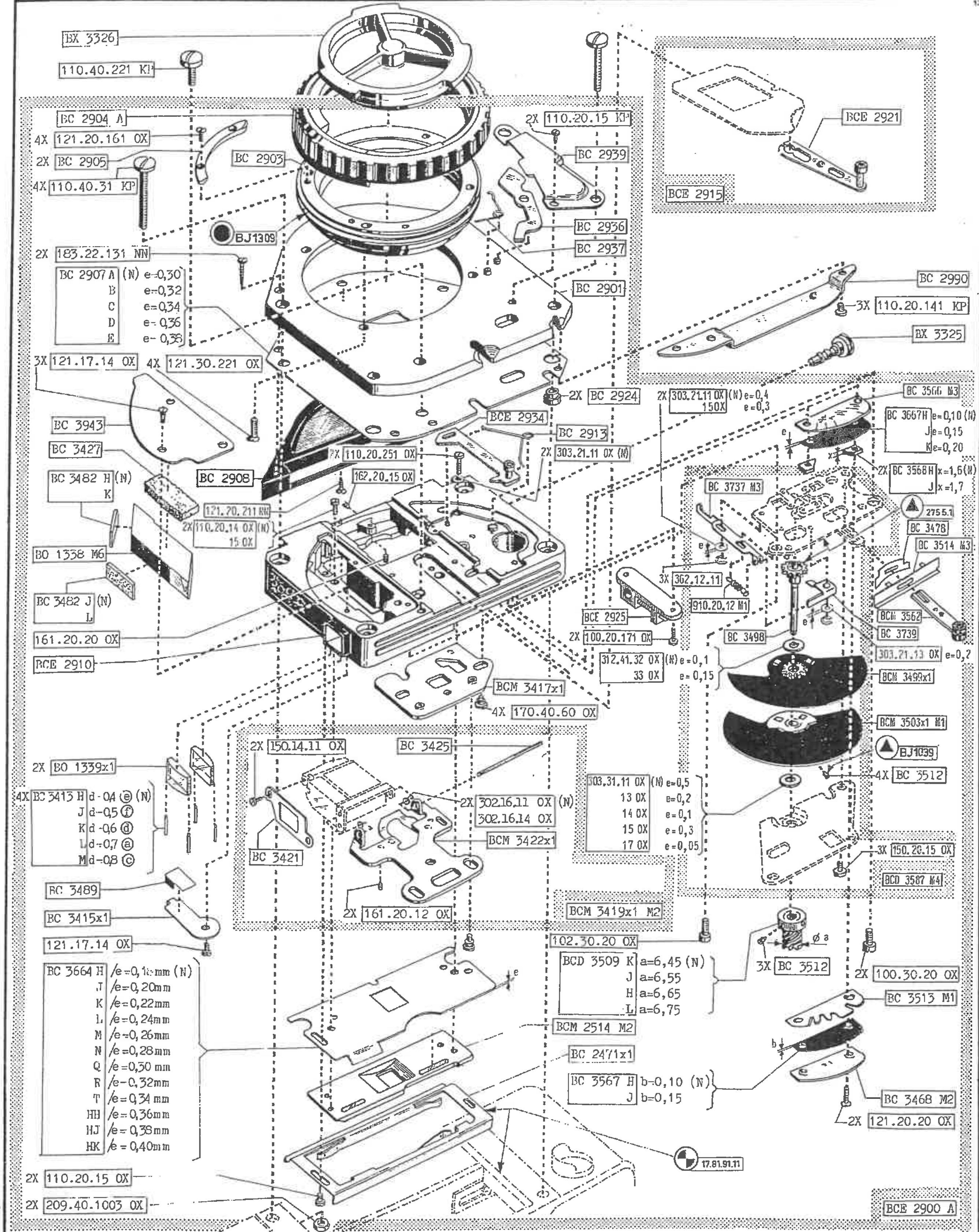
D) Wir empfehlen Ihnen, zwecks besserer Lesbarkeit die Drähte auf den Verdrahtungsschema mit den entsprechenden Farben nachzuziehen.

E) For better intelligibility it is recommended to trace the wires on the wiring diagrams with their respective colours.

M Table des matières
Inhaltsverzeichnis
Index

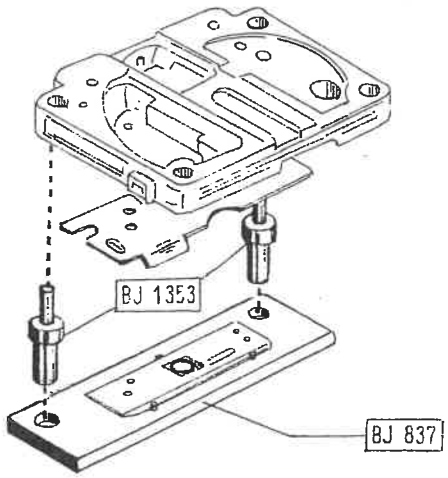
BOLEX

PD	Porte objectif Objektivhalter Lens Holder	H16SB H16SBM 300 201 → 300 001 →	BOLEX



H3	11.70	*	(F) Tirage mécanique (D) Mechanisches Auflagemass = 20,46 * ± 0,02 (E) Mechanical flange focal distance (F) * Peut varier suivant l'épaisseur du prisme (D) * Kann je nach sicke des Prismas variieren (E) * May differ, depending on the thickness of the prism	A	1

FM	Porte-objectif Objektivhalter Lens Holder	H16 SB - SBM 300 001 →	BOLEX

	Anciennes pièces Alte Teile Former parts	Nouvelles pièces Neue Teile New parts	Observations Bemerkungen Remarks
1	(BJ 1569 †)		F) Le gabarit de centrage BJ-1569 est mis hors-cours. Pour positionner le support de centrage du couloir BJ-837 sur le porte-objectif, planter 2 guides cylindriques BJ-1353 dans les 2 trous situés de part et d'autre du couloir. D) Die Zentrierlehre BJ-1569 ist nicht mehr verfügbar. Zur Einstellung der Filmbühne-Zentriervorrichtung BJ-837 auf dem Objektivhalter werden 2 Zylinderführungen BJ-1353 in die beiden Löcher der Filmbühne eingeführt. E) Centering gauge BJ-1569 is no longer available. In order to position the film gate centering device BJ-837 on the lens holder, introduce the 2 cylindric guides BJ-1353 into the 2 holes of the film gate. 04.76

1. Lens holder

Use support BJ 133 for all mounting proceedings of the lens holder.

Important : All lens elements, the prism and their seatings must be cleaned scrupulously, as the slightest particle of dust or finger prints appear greatly magnified in the viewfinder.

1.1 Collecting lenses (fig. 1)

Using BJ 579, carefully lift up lenses (a) at their base and remove with BJ 114. In case of lens replacements, calibre with BJ 583 the diameter of the nylon wedges to be used for a correct fastening in the seatings.

1.2 Film gate (fig. 2)

For the mounting and the centering of both film gate and wedge onto the lens holder, use support BJ 1569 with gauge BJ 837 at its top. Film gate (c) is positioned through the 3 pins (g) and centered by the window on cylinder (f). Set wedge (d) and lens holder (e) guided by the 4 pins of gauge and support; tighten the 4 screws (h). The outer edges of wedge (d) must come flush with the bearing surface of the film gate.

1.3 Transport prism (fig. 3)

Introduce prism (j) in its seating with the chamfered edge above and select wedges (k) and (l) which must provide no play at the fixing. If the thickest wedges are still insufficient, stick a small piece of black self-adhesive tape at the place marked by the arrow. Use tool BJ 114 for driving out the wedges.

1.4 Reflex prism (fig. 4)

The mounting and dismantling of the reflex prism (m) may be effected when the lower plate (o) has been removed, since the space available to carry out such works is very limited.

Lift up prism (m), engage the retaining wedge BJ 581 and close the prism against BJ 581.

Carefully introduce prism assembly (m) without scratching same.

Put up prism (m) and remove BJ 581.

Shift the lower plate (o) under the hinge plate (n) and screw the 4 screws (p) without tightening.

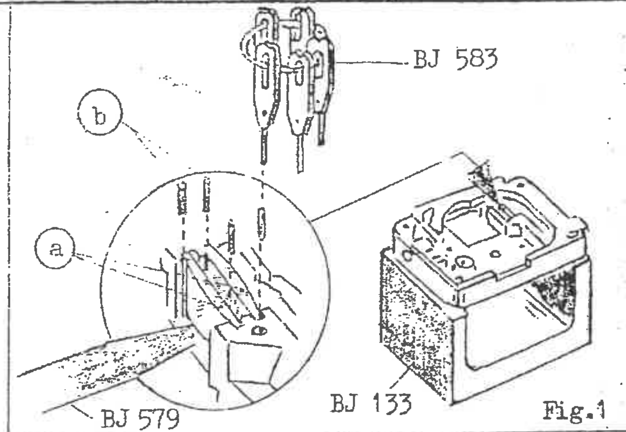


Fig.1

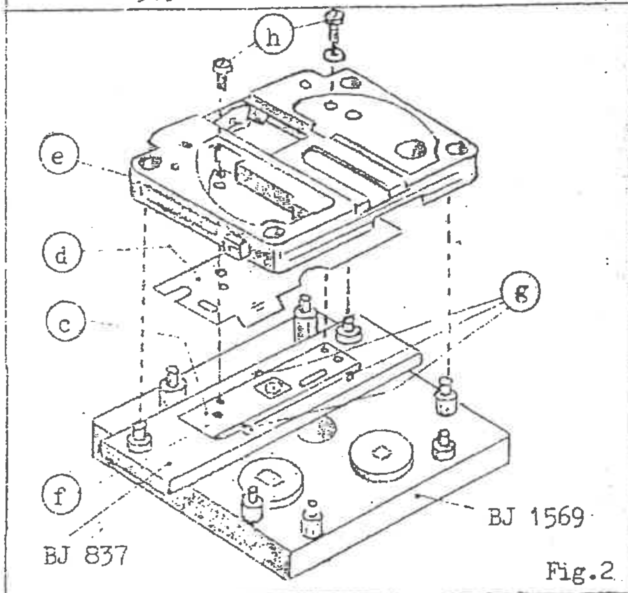


Fig.2

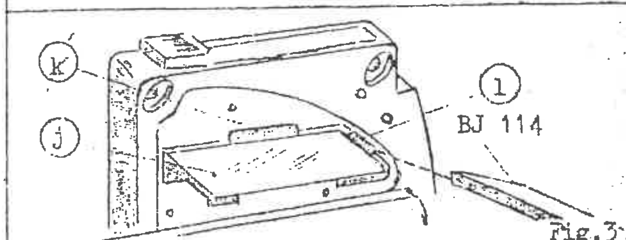


Fig.3

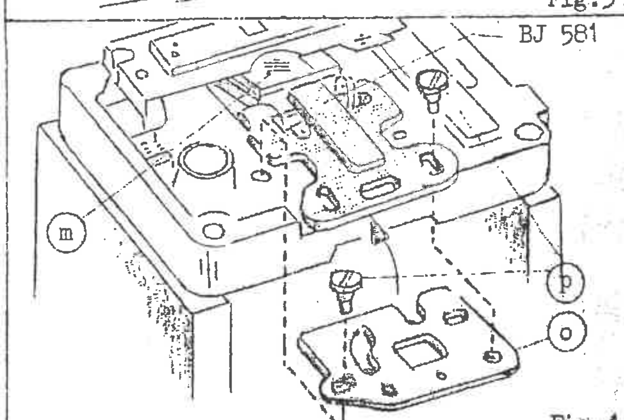


Fig.4

2. Optical flange focal distance

State of the lens holder as per fig. 5 with gate (a), a shim plate (b) of medium thickness (for instance e = 0,30 mm), a spacer (k) of medium thickness and the reflex prism (c) mounted.

2.1 Preparation as per fig. 6

Fit the lens holder onto support BJ 811 with the 2 screws and nuts BJ 811 E. Place mirror BJ 1597 opposite the gate window and retain it with spring (d). Switch on the autocollimator to position 1 (min. light intensity). Center the gate window with respect to the autocollimator axis. Slide the autocollimator lens to about 25 cm from the lens holder, adjusting the vernier scale to 0.

Horizontal adjustment : Adjust the angular position of support BJ 811 so that the luminous line appears diametrically in the eyepiece, fig. 7.1, position A.

Vertical adjustment : Loosen screw (f) and turn screw (e) with a view to bringing the lens holder into its vertical plane

2.2 Parallel adjustment of the prism

Put up the reflex prism and remove mirror BJ 1597. Loosen screw (h) and set the prism parallel with respect to the gate by acting on screw (j) and on the 2 screws (l). The position of the prism is correct once the luminous line is visible in the eyepiece as per position A, but positions B and C, fig. 7.2, are still acceptable.

These adjustments precede the adjustment of the flange focal distance and may be rectified while adjusting the flange focal distance of the ground glass screen of the prism.

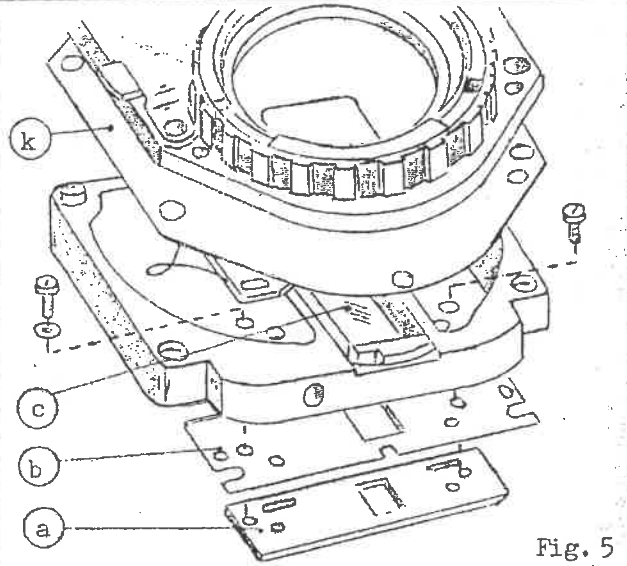


Fig. 5

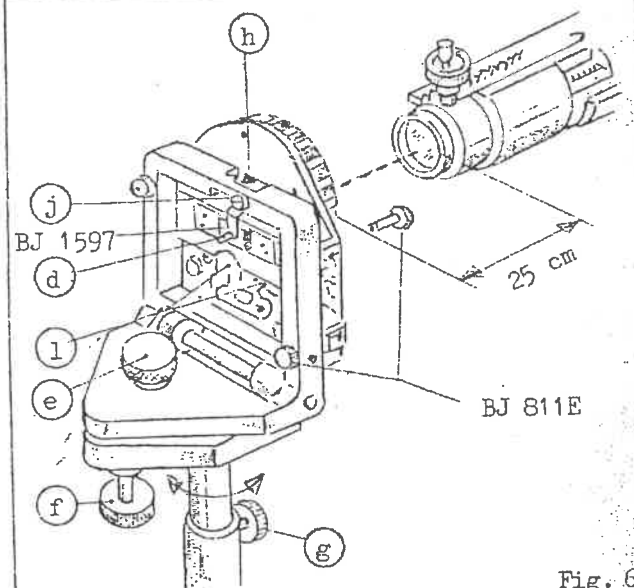


Fig. 6

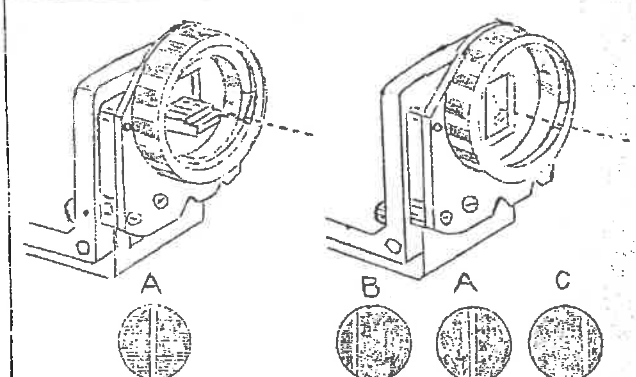


Fig. 7.1 Fig. 7.2

Fig. 7

2.3 Adjusting the optical flange focal distance

Preparation as per fig. 8.
Fit the calibration lens BJ 151 and the bayonet support BJ 1310 to the lens holder. Switch on the autocollimator to position 1 (min. light intensity). Slide the autocollimator tube so that the line seen in the eyepiece has the maximum of contrast, illustration D. Note the difference with respect to the zero of the vernier. This figure, read in mm on the vernier, indicates the value in 0.01 mm by which the thickness of the shims previously used must be varied, so as to obtain the following readings on the vernier scale :

| 0 ± 2 divisions | = ± 0.02 mm

2.4 Adjusting the flange focal distance of the ground glass prism

Remove mirror BJ 1597 and switch on the autocollimator to position 2 (max. light intensity).
Act in reverse order on screw (j) and on screws (l) so as to maintain the parallelism of the prism and to bring the flange focal distance of the ground glass to

| ± 2 divisions | = ± 0.02 mm

of the reading noted under paragraph 2.3.

Screws (l) to be screwed and (j) blocked through tightening of screw (h).

2.5 Framing

Preparation as per fig. 9, light source at (m).
Focus the magnifying glass BJ 810 on the edges of the prism aperture.
Center the white rectangle in the red one.
To carry out the horizontal adjustment, slightly loosen screws (n) and act with the eccentric screwdriver BJ 1594 in (o).
To carry out the vertical adjustment, slightly loosen screws (p) and act with BJ 1594 in (r). Afterwards tighten (n) and (p).
Should a small parallel defect appear between the 2 apertures, slightly loosen screw (s) and align the ground glass mask (t).

2.6 Film guide (fig. 10)

Gauge BJ 1500x1 must slide in the film guide, but without play. The pressure exerted by spring leaf (u) must be of :

| 50 ± 5 g |

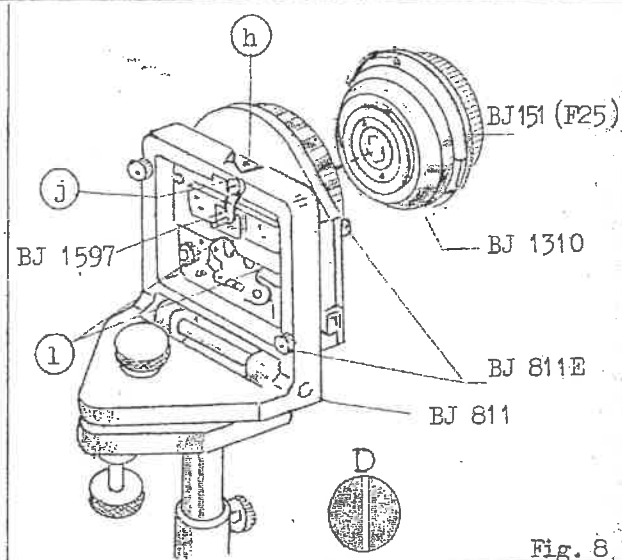


Fig. 8

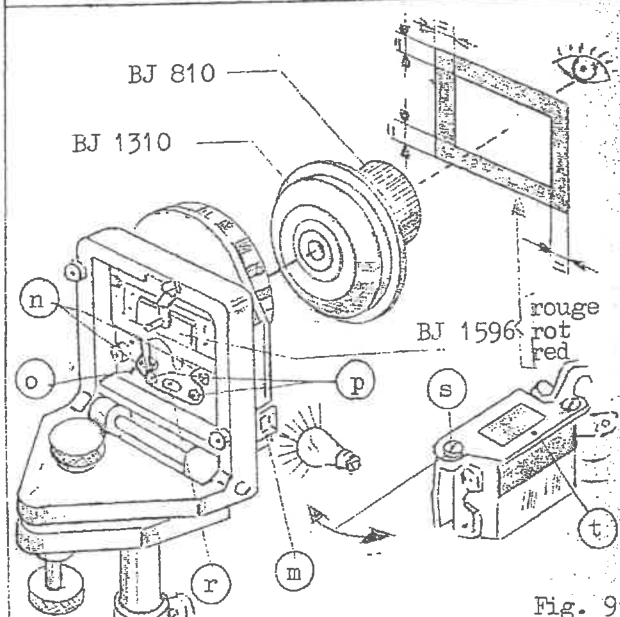


Fig. 9

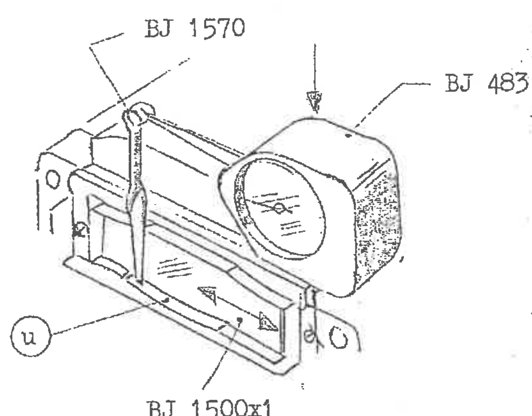


Fig. 10

3. Variable shutter (fig. 11)

Mount the variable shutter assembly (a) on the lens holder.
Select the necessary shims and spacers so that :
1) lever (b) slides freely and smoothly
2) the pile does not protrude in (c).

3.1 Adjustments

Put control lever (b) in open shutter position (red mark).
On point (x) bring the 2 shutter blades in superposition, however so that the fixed sector is retracted by 1 mm under the upper movable sector. Maintain both sectors and catch the play of the shutter control mechanism by turning the axle in the direction of the arrow. With the 4 screws, fasten the fixed shutter blade to its axle.

3.2 Adjusting the lens holder on the housing

Place pinion (d) on the VS axle as shown in fig. 12.
Fasten pinion very slightly on its axle by means of one single screw.
Mount lens holder on camera, the mechanism of which being stopped as per fig. 13.
The pinion (d) to be used must allow a slight play in the transmission.
When operating the camera frame by frame in position T and by maintaining the button on P, the shutter must stop as per fig. 14.
Remove the lens holder and tighten the 3 screws of pinion (d).
Before mounting the lens holder definitely as previously described, bring the shutter in the position shown in fig. 15. Pinion (d) turns the shutter automatically in the right position as per fig. 14.
Check the free movement of the mechanism by means of the handcrank for the backward motion.
Make sure that the shutter is adequately fastened as per fig. 14, the mechanism being stopped according to fig. 13.

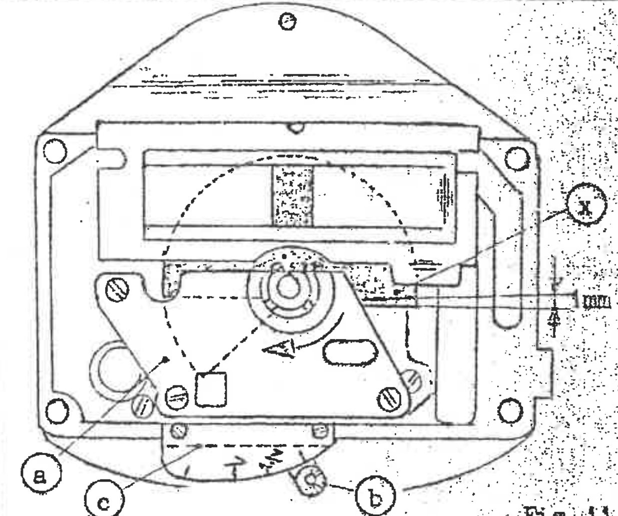


Fig. 11

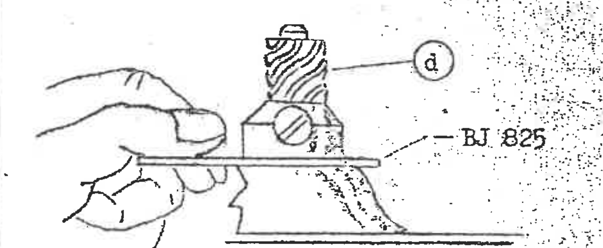


Fig. 12

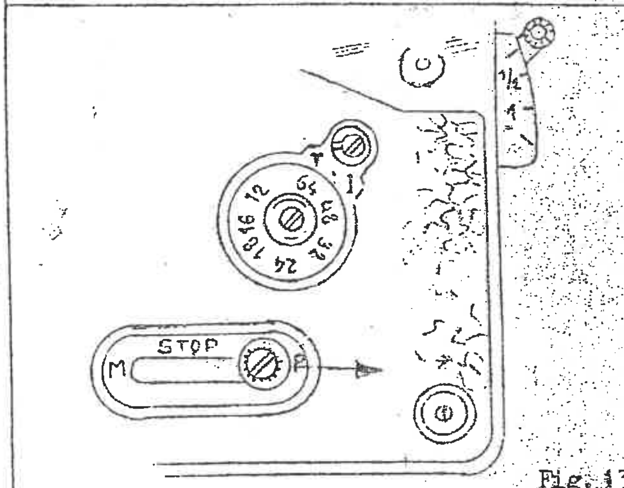


Fig. 13

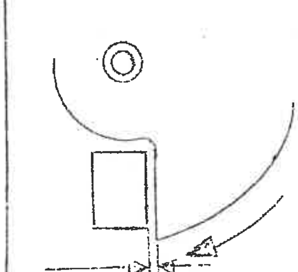
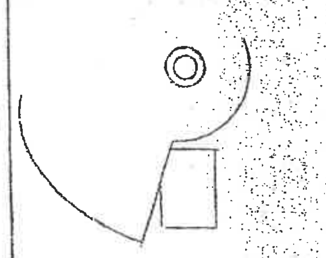
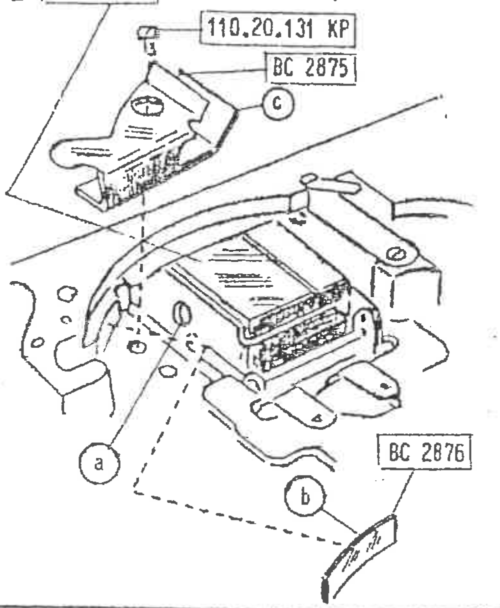


Fig.14


Fig. 15

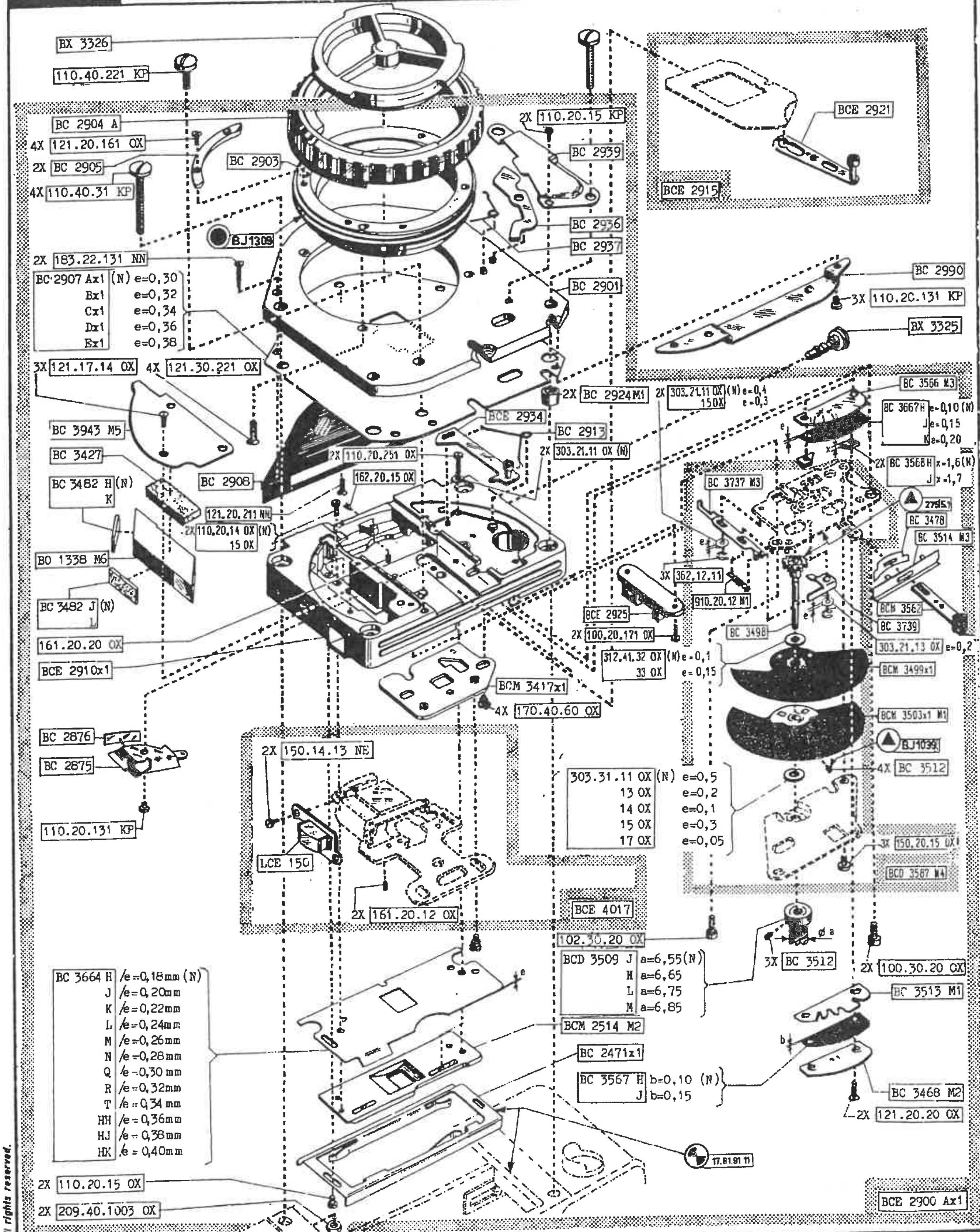
FM	Porte-objectif Objektivhalter Lens Holder	H16S8 / SBM 300 001 →	BOLEX

	Anciennes pièces Alte Teile Former parts	Nouvelles pièces Neue Teile New parts	Observations Bemerkungen Remarks
1		BCD 3509 M a=6,85 (N)	(F) Engrenage supplémentaire d'un taillage plus grand (D) Zusätzliches Zahnrad mit grösserer Zahnform. (E) Additional gear wheel with bigger tooth formation. 05.71
2	① (BCM 3419x1 M2 †)	② BCD 3419x1 300 251 → 	(F) Le trou de lumière sur le porte-prisme en (a) est supprimé, retour à l'ancien prisme. Introduction d'un réflecteur autocollant (b) et d'un réflecteur guide-lumière (c). (D) Die Lichtöffnung an (a) auf der Prismenfassung ist aufgehoben, daher die Verwendung des älteren Prismas. Einführung eines selbstklebenden Reflektors (b) sowie eines Lichtführungs-Reflektors (c). (E) The light aperture (a) on the prism mount is eliminated, hence the use of the old prism. Introduction of a self-sealing reflector (b) as well as of a light guiding reflector (c). 05.71
3	3X (110.20.141 KP †)	3X 110.20.131 KP	(F) Nomenclature modifiée (D) Teilnummernänderung (E) Part-number modification 05.71
4	(BC 2907 Axl †) (" Bxl †) (" Cxl †)	BC 2907 F (N) e= 0,44 G e= 0,46 H e= 0,48	(F) Nouvelles variantes de caches et suppression de 3 variantes. (D) Einführung von neuen Gleitfiltern und Wegfall von 3 Ausführungen. (E) Introduction of new filter holders and suppression of 3 versions. 11.71
5	(BCE 2925 †) 2X(100.20.170 OX †)	BCE 2925 M2 2X 120.20.161 NI	(F) Fixation du support claquette modifiée pour éviter un court-circuit avec les contacts. Vis à tête conique remplace vis à tête plate. (D) Aenderung in der Befestigung des Startmarkierungshalters zur Vermeidung eines Kurzschlusses mit den Kontakten. Die Flachkopfschraube wird durch eine Zylinderschraube ersetzt. (E) Modification of the clapper support fixing to avoid a short-circuit with the contacts. The flat head screw is replaced by another one with cylinder head. 11.71

FM	Porte-objectif Objektivhalter Lens Holder	H 16 SB-SBM	Bolex paillard

	Anciennes pièces Alte Teile Former parts	Nouvelles pièces Neue Teile New parts	Observations Bemerkungen Remarks
1	(BC 2907 Ax1 ┼) (" Bx1 ┼) (" Cx1 ┼)	BC 2907 F (N) e= 0,44 G e= 0,46 H e= 0,48	(F) Nouvelles variantes de caches et suppression de 3 variantes. (D) Einführung von neuen Gleitfiltern und Wegfall von 3 Ausführungen. (E) introduction of new filter holders and suppression of 3 versions. 11.71
2	(BCE 2925┼) ~~2X(100.20.171 OX┼)~~ 2X (100.20.171 OX┼)	BCE 2925 M2 2X 120.20.161 Ni	(F) Fixation du support claquette modifiée pour éviter un court-circuit avec les contacts. Vis à tête conique remplace vis à tête plate. (D) Aenderung in der Befestigung des Startmarkierungshalters zur Vermeidung eines Kurzschlusses mit den Kontakten. Die Flachkopfschraube wird durch eine Zylinderschraube ersetzt. (E) Modification of the clapper support fixing to avoid a short-circuit with the contacts. The flat head screw is replaced by another one with cylinder head. 11.71

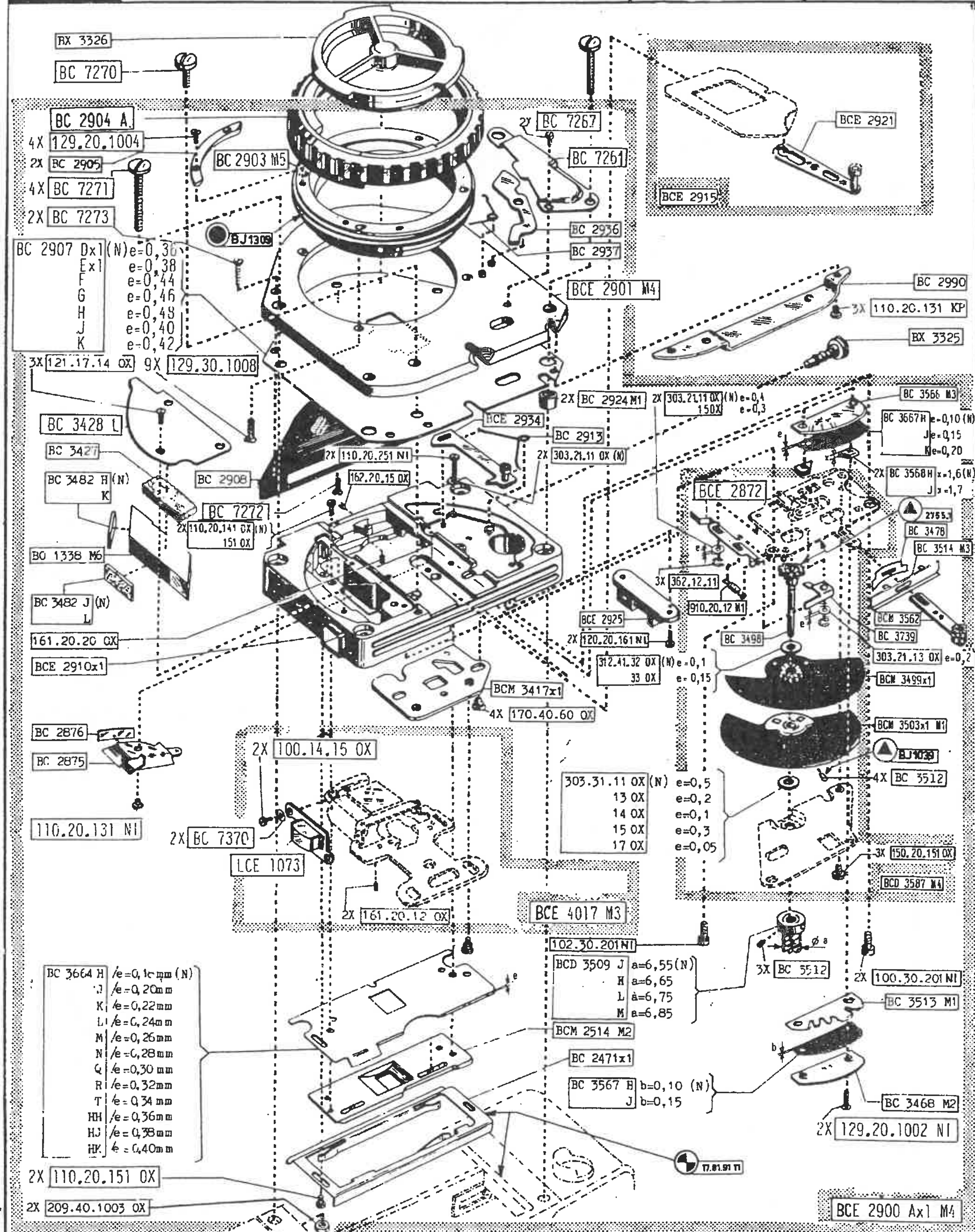
PD	Porte objectif Objektivhalter Lens Holder	H16SB H16SBM 302 110 → 302 692 →	BOLEX



(F) Tirage mécanique
(D) Mechanisches Auflagemass — 27,46 * ± 0,02
(E) Mechanical flange focal distance

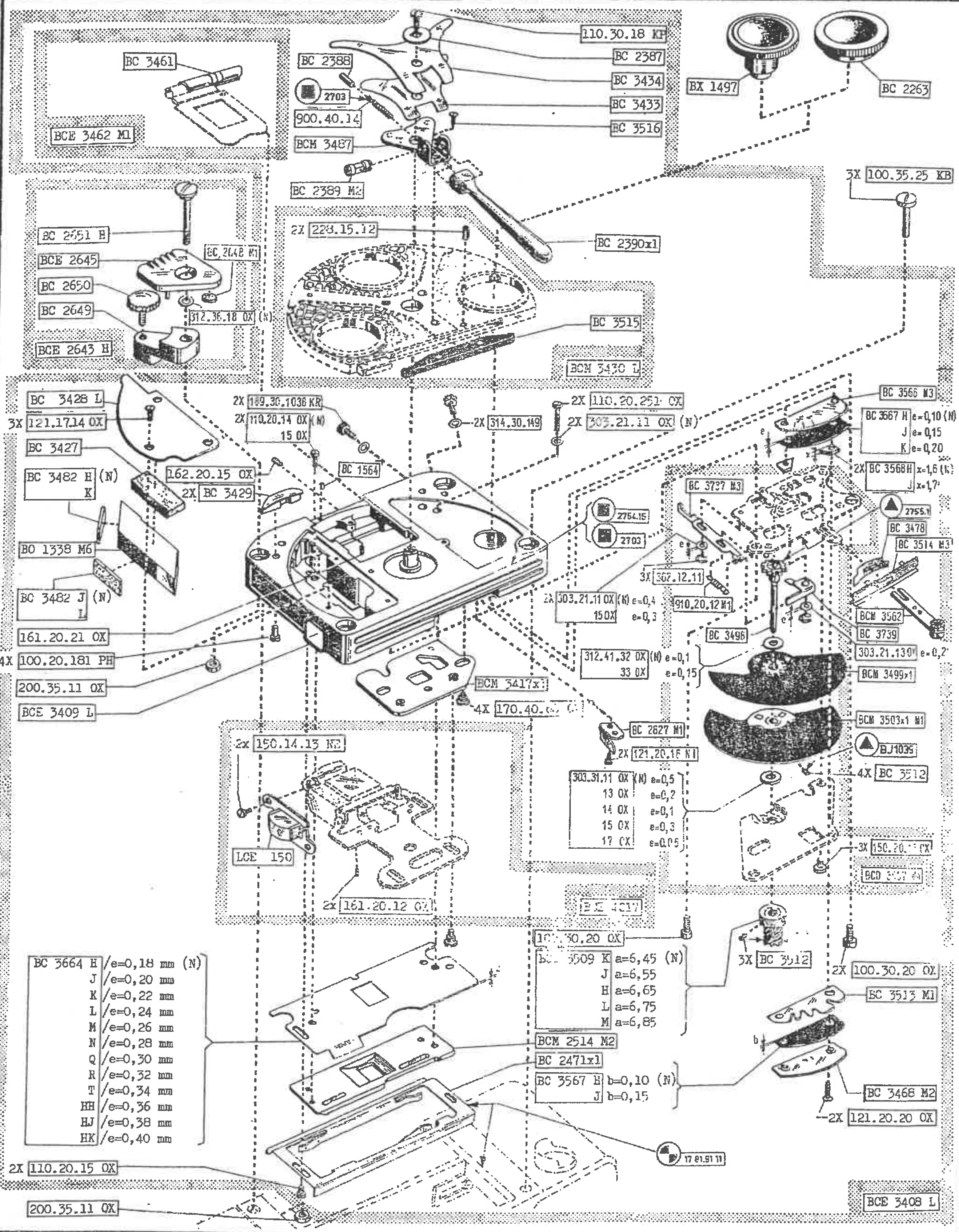
(F) * Peut varier suivant l'épaisseur du prisme
(D) * Kann je nach Dicke des Prismas variieren
(E) * May differ, depending on the thickness of the prism

PD	Porte objectif Objektivhalter Lens Holder	H16SBM 350 001 →	BOLEX



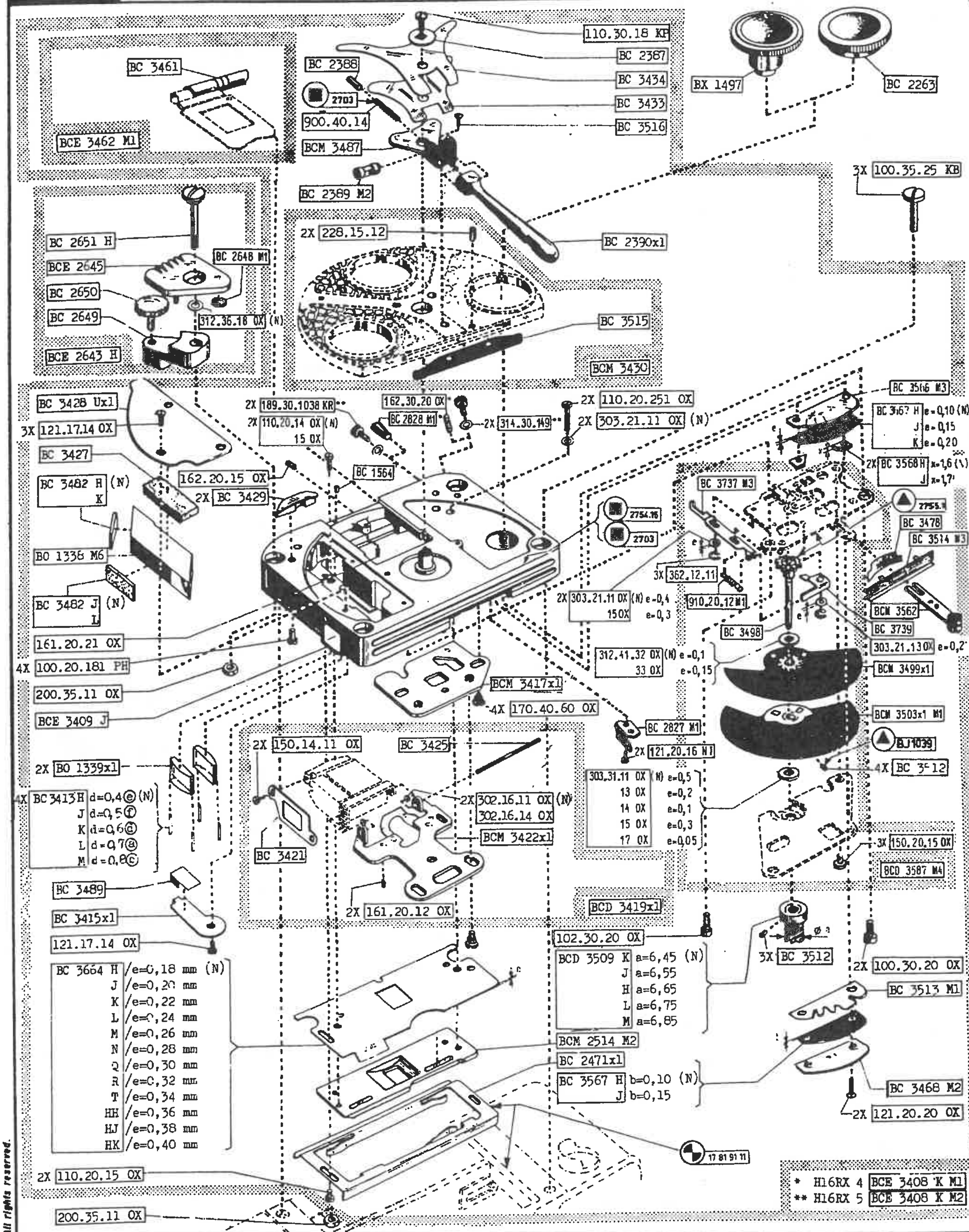
H3	12.77	*	(F) Tirage mécanique (D) Mechanisches Auflagemass = 25,46 * ± 0,07 (E) Mechanical flange focal distance (F) * Peut varier suivant l'épaisseur du prisme (D) * Kann je nach Dicke des Prismas variieren (E) * May differ, depending on the thickness of the prism	A	1.2

PD	Porte objectif Objektivhalter Lens Holder	H16RX 253 020 →	BOLEX



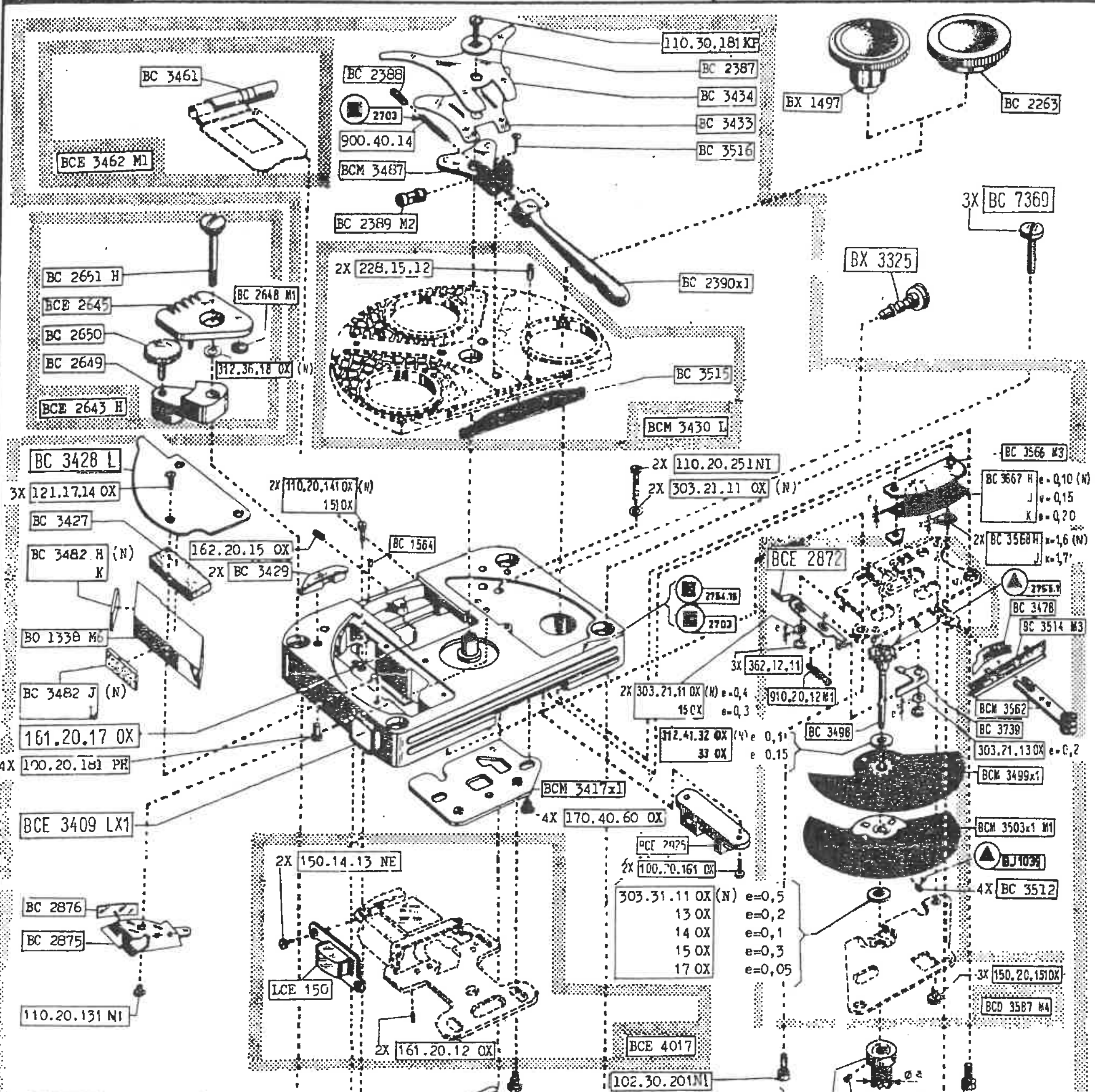
H 3	09.71	*	(F) Tirage mécanique (D) Mechanisches Auflagemass = 20,76 $^{*}\pm$ 0,02 (E) Mechanical flange focal distance (F) * Peut varier suivant l'épaisseur du prisme (D) * Kann je nach Stärke des Prismas variieren (E) * May differ, depending on the thickness of the prism	A	2.1

PD	Porte objectif Objektivhalter Lens Holder	H16RX4 / RX5 251 501 →	BOLEX



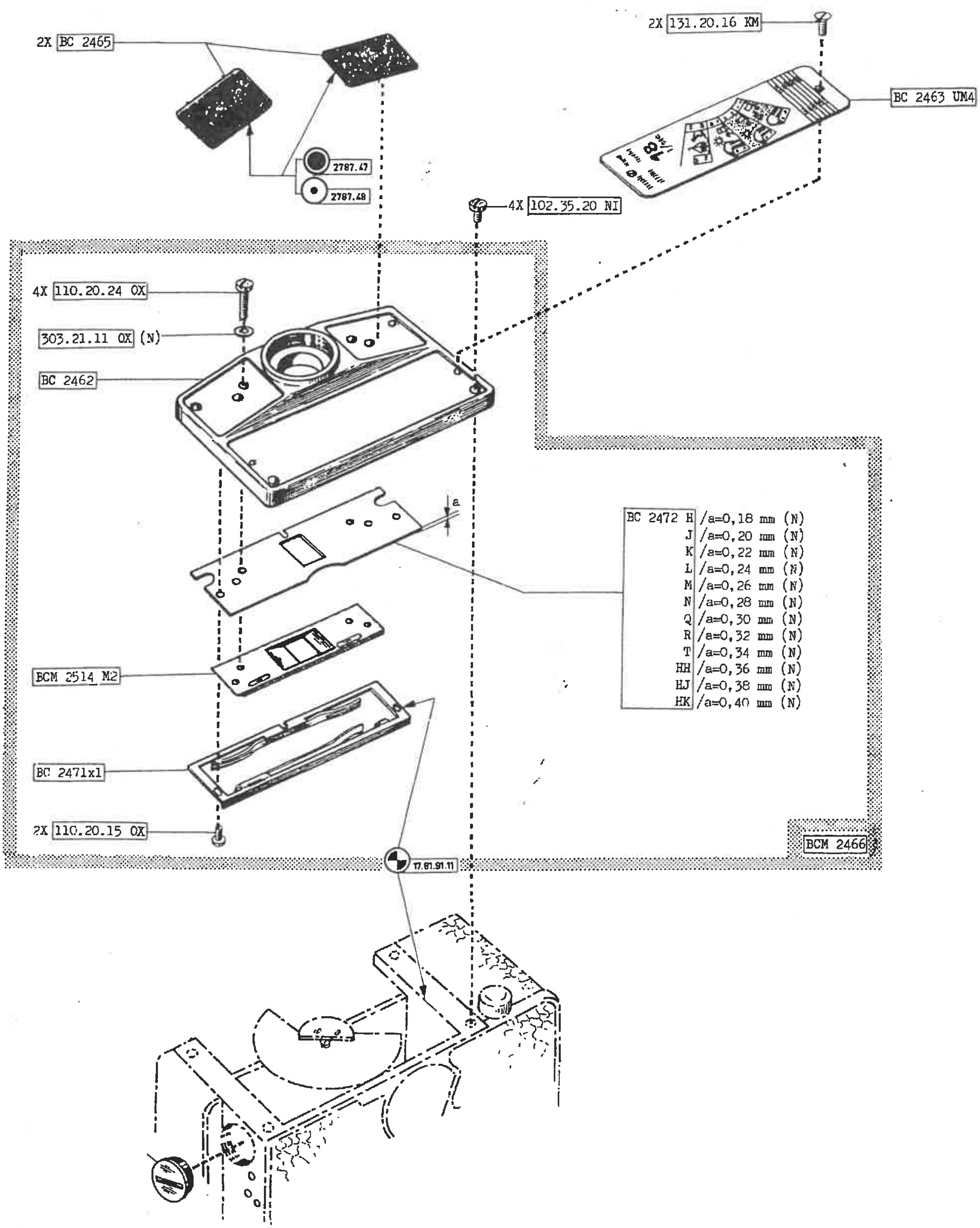
H3	01.71	*	(F) Tirage mécanique (D) Mechanisches Auflagemass = 20,76 ⁺₋ 0,02 (E) Mechanical flange focal distance (F) * Peut varier suivant l'épaisseur du prisme (D) * Kann je nach Dicke des Prismas variieren (E) * May differ, depending on the thickness of the prism	A	2

PD	Porte objectif Objektivhalter Lens Holder	H16RX 350 001 →	BOLEX



H 3	12.77	⁎	(F) Tirage mécanique (D) Mechanisches Auflagemass = 20,76 * ± 0,02 (E) Mechanical flange focal distance (F) * Peut varier suivant l'épaisseur du prisme (D) * Kann je nach sicke des Prismas variieren (E) * May differ, depending on the thickness of the prism	A	2.2

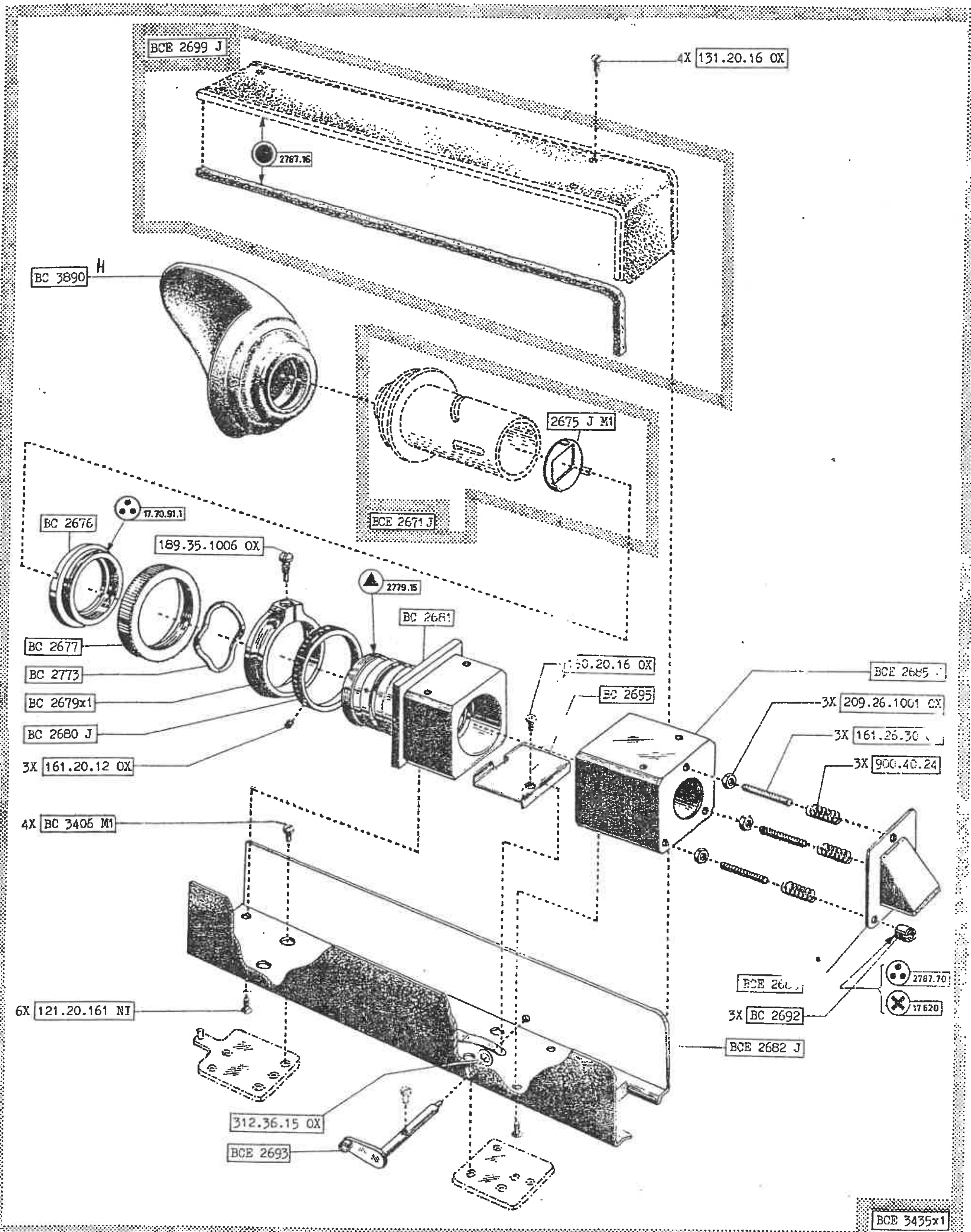
PD	Porte objectif Objektivhalter Lens Holder	H16M5 251 501 →	BOLEX



BC 2472	/a=		
H	/a=0,18	mm	(N)
J	/a=0,20	mm	(N)
K	/a=0,22	mm	(N)
L	/a=0,24	mm	(N)
M	/a=0,26	mm	(N)
N	/a=0,28	mm	(N)
Q	/a=0,30	mm	(N)
R	/a=0,32	mm	(N)
T	/a=0,34	mm	(N)
HH	/a=0,36	mm	(N)
HJ	/a=0,38	mm	(N)
HK	/a=0,40	mm	(N)

H3	01.71	*	(F) Tirage mécanique (D) Mechanisches Aufkagemass = 17,52 ± 0,02 (E) Mechanical flange focal distance	A	3

PD	Viseur reflexe Reflex-Sucher Reflex-Viewfinder	H16 251.501 ⟹	BOLEX



1. Reflex viewfinder (fig. 1)

1.1 While adjusting the reflex viewfinder onto the camera housing, pin (b) must engage in the slot (a) of the eyepiece. Introduce the beak of screw (c) in the helicoidal slot of the eyepiece (a) and screw without tightening.
Center the mask inside eyepiece (a) with tool BJ 1043.
Align front prism (d) (fig. 2) by acting on the 3 screws (e) until the image reflected by the prism coincides with the mask of the eyepiece, still by maintaining a distance of 9 mm.
Mount the lid.

1.2 Adjusting the eyepiece (fig. 1)

Equip the camera with a standard lens and project a beam of parallel light rays through the lens (e.g. via a projector). Sight the eyepiece with a dioptric tube BJ 1016 which must be adequately aligned and set to infinity. Subsequently turn adjusting ring (h) until the grain of the ground glass screen appears perfectly sharp.
Turn the graduated collar (g) until the line +1 coincides with the mark of adjusting ring (h).
Tighten screws (j).

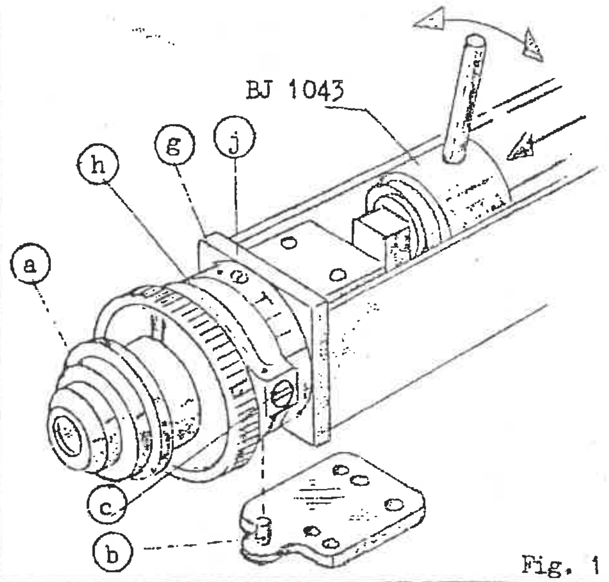


Fig. 1

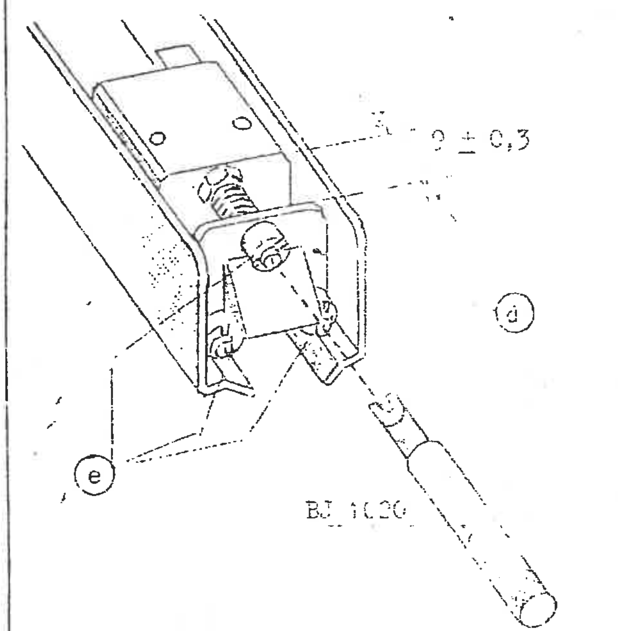


Fig. 2

FM

Viseur reflexe
Reflex-Sucher
Reflex-Viewfinder

H16 SB - SBM - RX

BOLEX

	Anciennes pièces Alte Teile Former parts	Nouvelles pièces Neue Teile New parts	Observations Bemerkungen Remarks
1	~~BCE 1000 B~~	LCE 1000 B	F) Erreur d'impression D) Druckfehler E) Misprint 03.72
2	2x (110.35.161 NI†)	2x 109.35.1009 NI	F) Nomenclature modifiée D) Teilnummernänderung E) Part-number modification 03.72

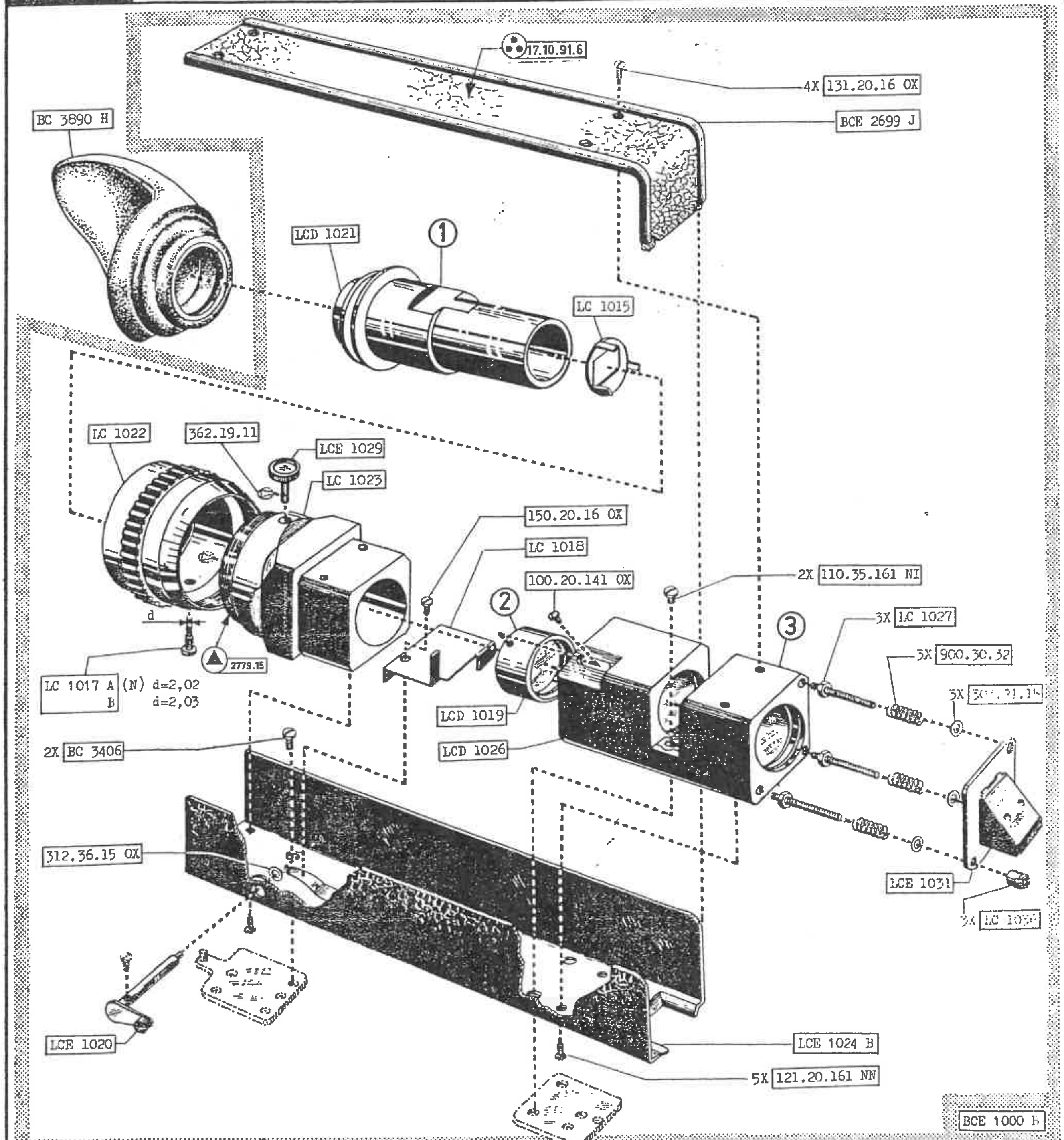
PD

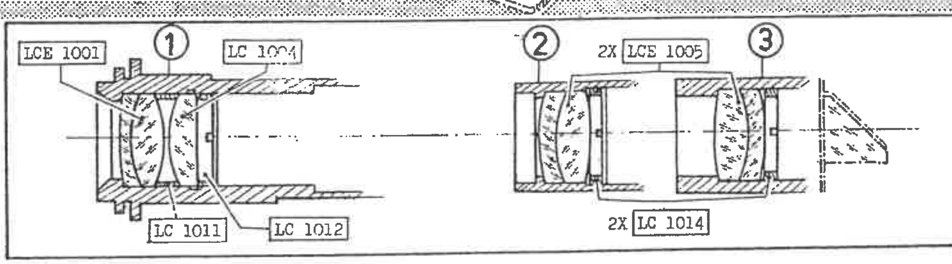
Viseur reflexe
Reflex-Sucher
Reflex-Viewfinder

H16SB-SBM
H16RX

302 110 → / 302 692 →
253 020 →

BOLEX





IT	Reflex-Viewfinder	H 16 SB / SBM RX / EBM	BOLEX

1. Reflex Viewfinder (Fig. 1)

1.1 While adjusting the reflex viewfinder on to the camera housing, pin (b) must engage in the slot (a) of the eyepiece. Center the mask inside eyepiece (a). Align front prism (d) (Fig. 2) by acting on the 3 screws (c) until the image reflected by the prism coincides with the mask of the eyepiece, whereby a distance of 5.8 mm must be maintained.

1.2 Adjusting the eyepiece (Fig. 1)

Equip the camera with a standard lens and project a beam of parallel light rays through the lens (e.g. via a projector). Sight the eyepiece with a dioptric tube BJ 1016 which must be adequately aligned and set to infinity. Subsequently, turn optical assembly 2 until the grain of the ground glass screw appears perfectly sharp, when line + 1 of the graduated ring is opposite the mark.

Tighten screw (j).
Mount the lid.

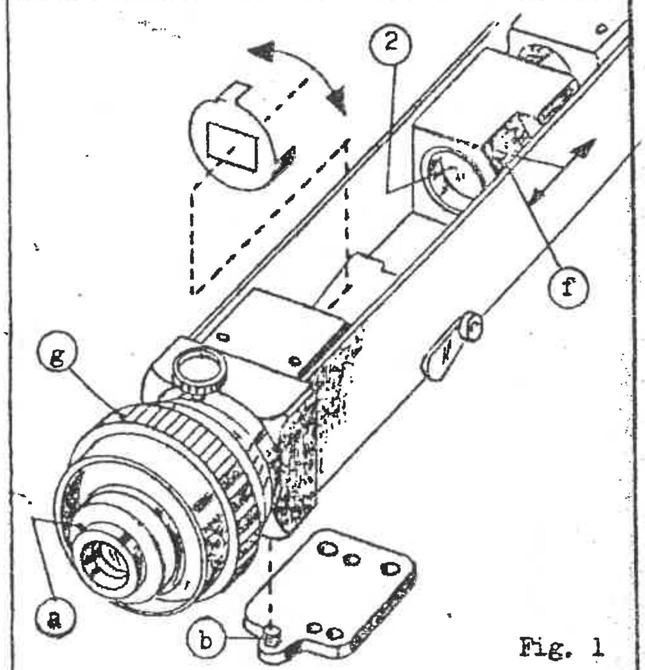


Fig. 1

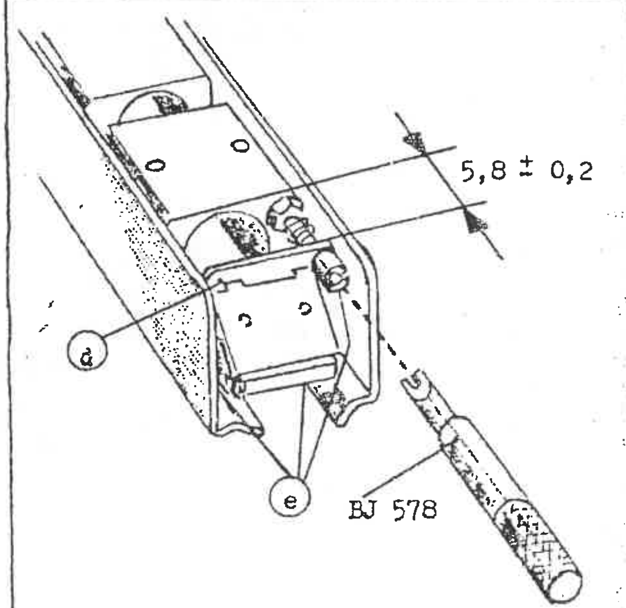
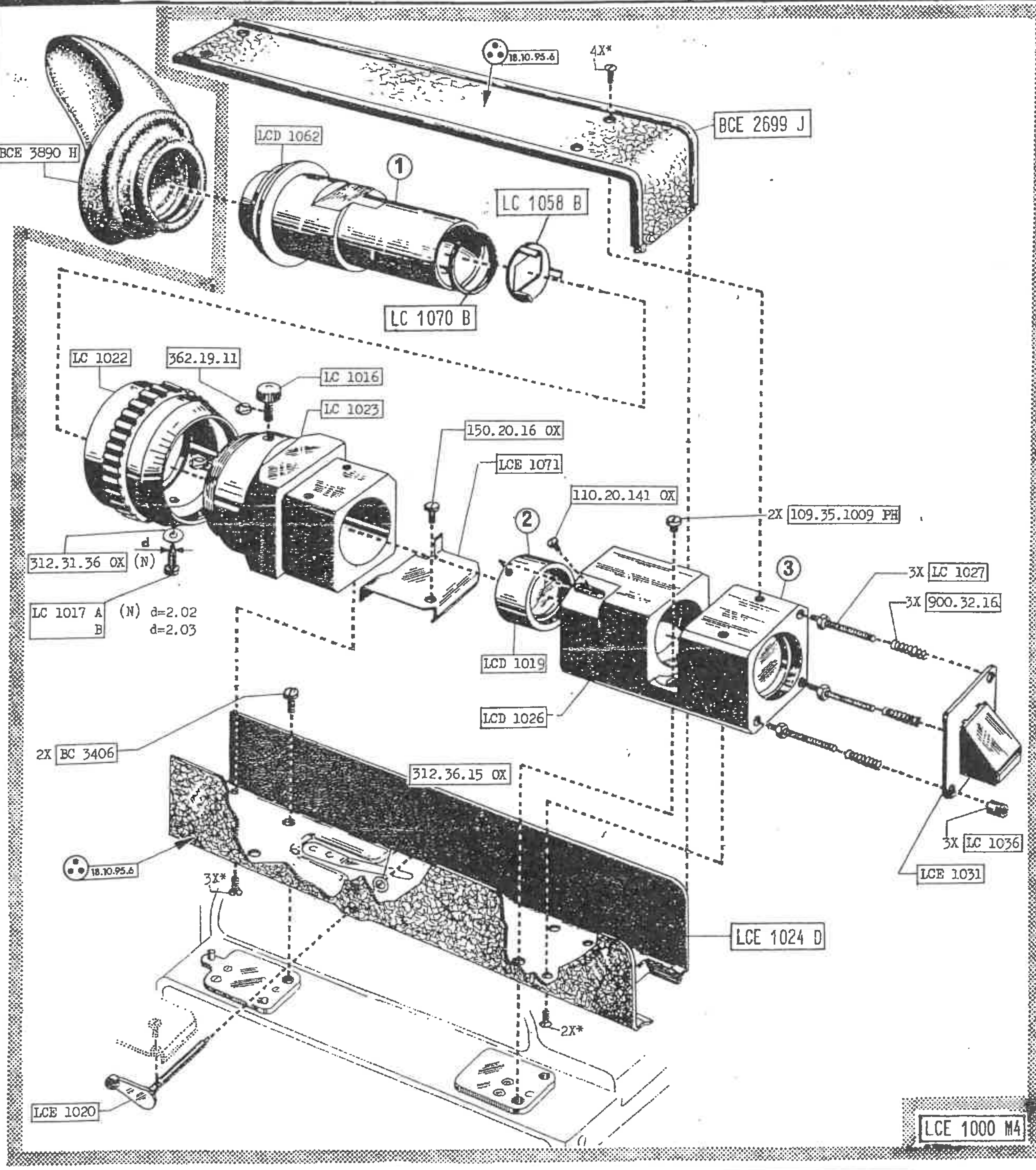
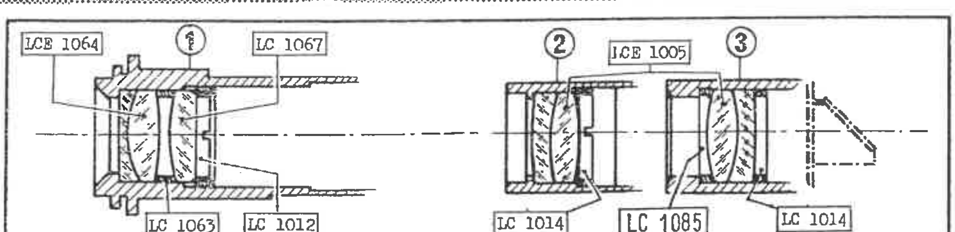


Fig. 2

PD	Viseur reflex Reflex- Sucher Reflex Viewfinder	H16SBM H16RX 350 001 ⟹	BOLEX





H3	12.77	✳	* 9X 129.20.1004 NN	B	1.2

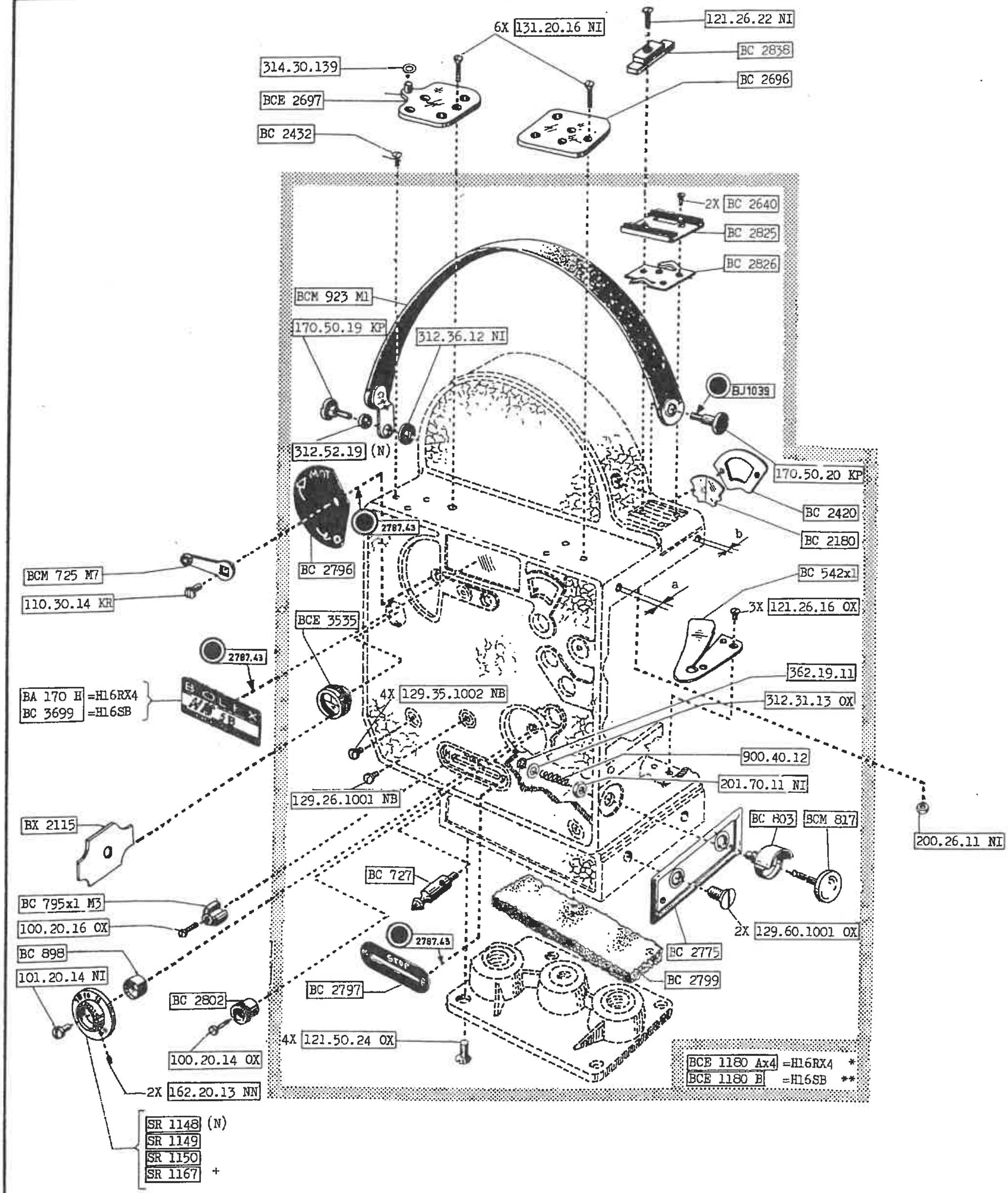
Printed in Switzerland

PD Boîtier
Kameragehäuse
Camera body

H16RX4 / H16SB

251 501 ⟹

BOLEX

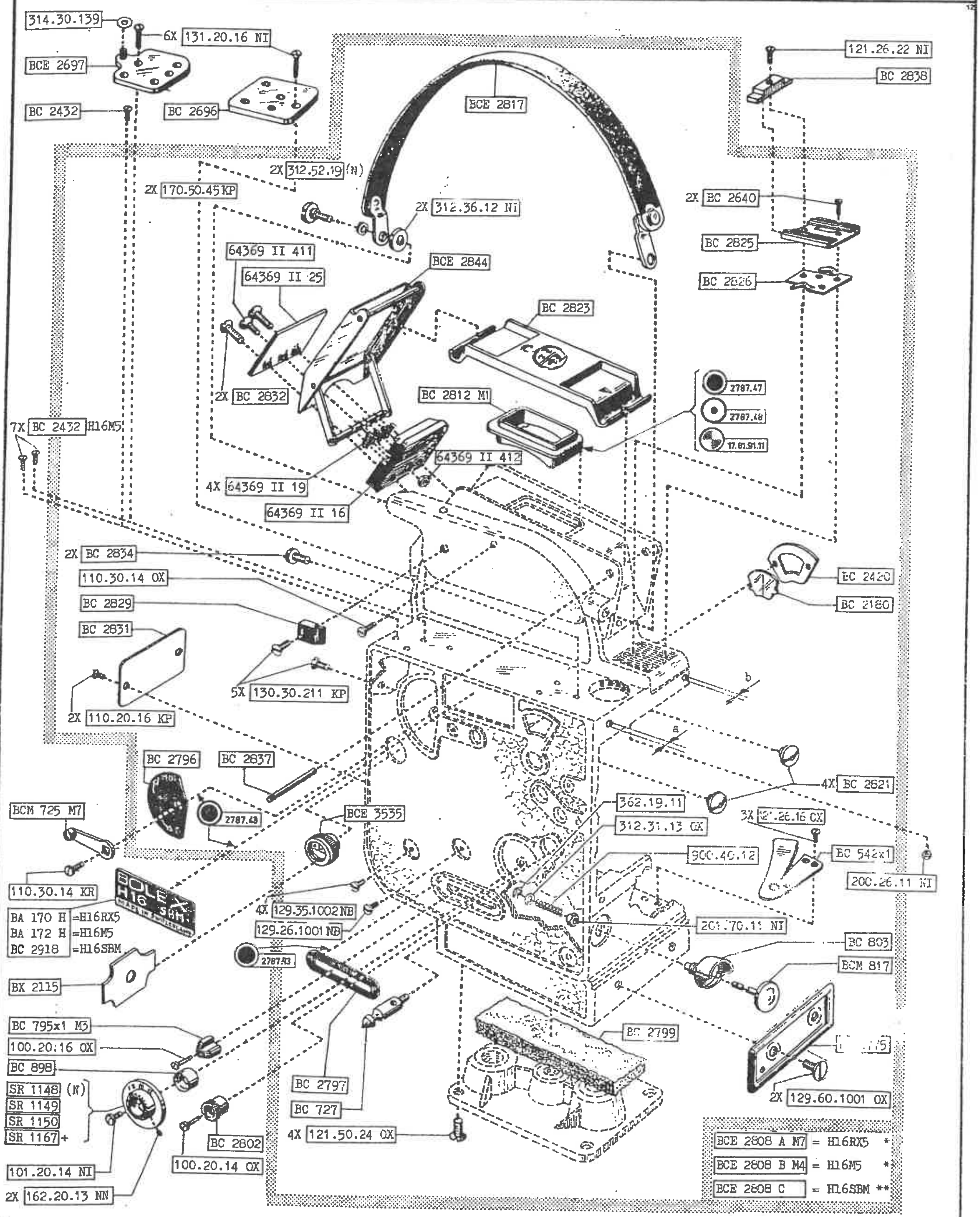


H3	01.71	✳	non gravé + nicht graviert not engraved	* 2x(a)+2x(b) =M3,5 ** 2x(a) =M4 2x(b) =4,3 mm	C	1

FM	Boîtier Kameragehäuse Camera body	H 16 RX 5/M 5 /SBM 251501 →	BOLEX

	Anciennes pièces Alte Teile Former parts	Nouvelles pièces Neue Teile New parts	Observations Bemerkungen Remarks
1	3x (121.26.16 OX†)	3x 129.26.1003 OX	F/ Nomenclature modifiée D/ Teilnummernänderung E/ Part-number modification 09.71
2	① (BC 2696†) NI 1/2	② BC 2696x1 1 2/1 H16 RX 5 - 253 020 → H16 SBM - 302.110 →	F/ L'introduction du nouveau viseur reflex nécessite une plaque modifiée. D/ Die Einführung des neuen Reflex-Suchers erfordert eine abgeänderte Platte. E/ Modified plate further to the introduction of the new reflex viewfinder. 09.71

PD	Boîtier Kameragehäuse Camera body	H16RX5 / H16M5 H16SBM 251.501 ⟹	BOLEX



H 3	01.71	*	non gravé + nicht graviert not engraved	* 2x(a)+2x(b)=M3,5 ** 2x(a) =M4 2x(b) =4,3 mm	C	2

FM	Boîtier Kameragehäuse Camera body	H 16 RX 5/M 5 /SBM 251501 →	BOLEX

	Anciennes pièces Alte Teile Former parts	Nouvelles pièces Neue Teile New parts	Observations Bemerkungen Remarks
1	3x (121.26.16 OX†)	3x 129.26.1003 OX	F/ Nomenclature modifiée D/ Teilnummernänderung E/ Part-number modification 09.71
2	① (BC 2696†) NI 1/2	② BC 2696x1 — 1 2/1 H16 RX 5 – 253 020 → H16 SBM – 302.110 →	F/ L'introduction du nouveau viseur reflex nécessite une plaque modifiée. D/ Die Einführung des neuen Reflex-Suchers erfordert eine abgeänderte Platte. E/ Modified plate further to the introduction of the new reflex viewfinder. 09.7
3	110.30.14 KR 3X 129.26.1003 OX 129.26.1001 NN 5X 150.30.211 KP BCE 2617	350 001 → 109.20.1023 3X 129.25.1003 OX 129.25.1001 NN 5X BC 7269 BCE 2847	F) Nomenclature modifiée. D) Teilnummernänderung. E) Part-number modification. 12.77

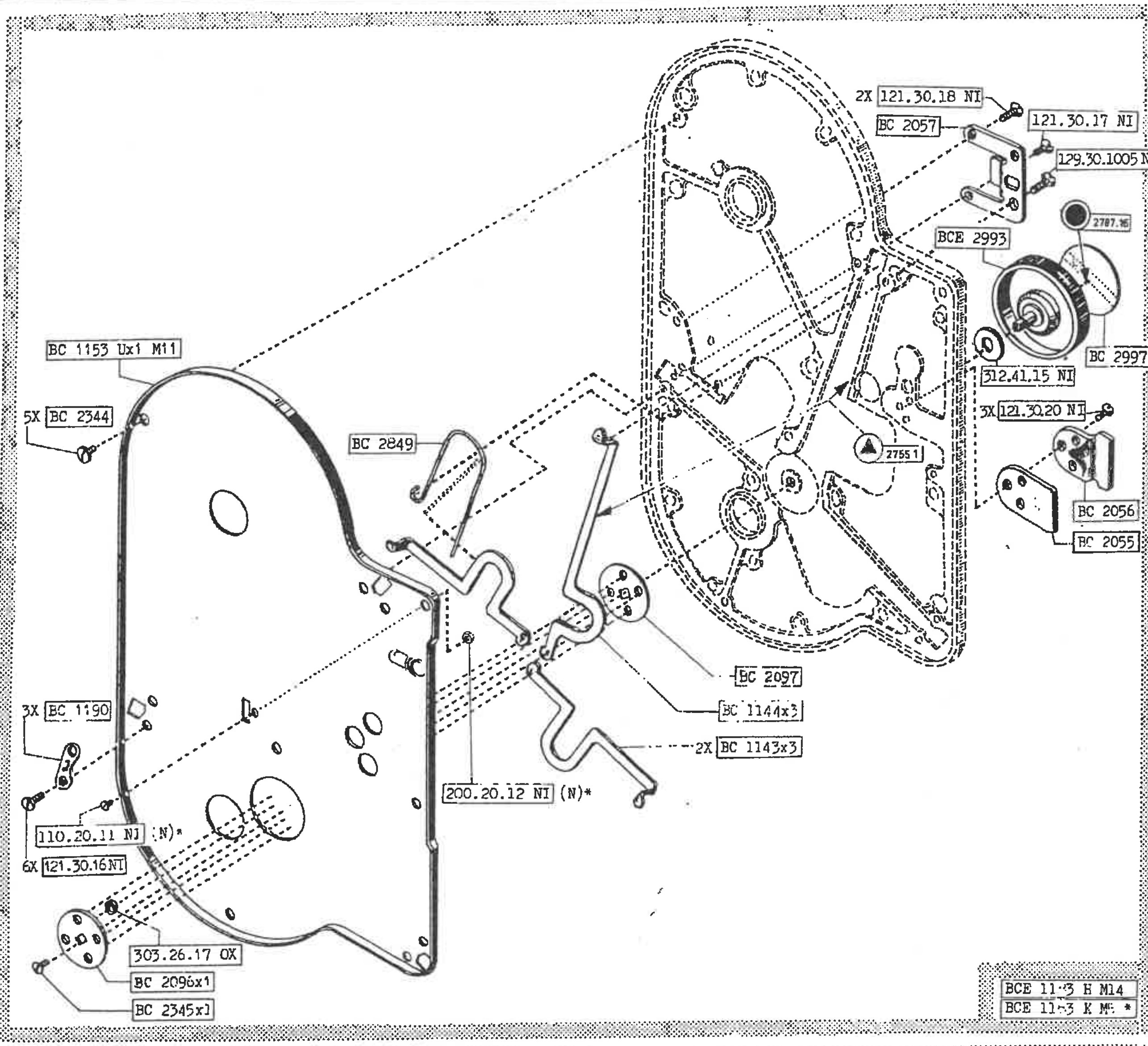
PD

Couvercle – Manivelle
Deckel – Aufzugskurbel
Lid – Rewinding handle

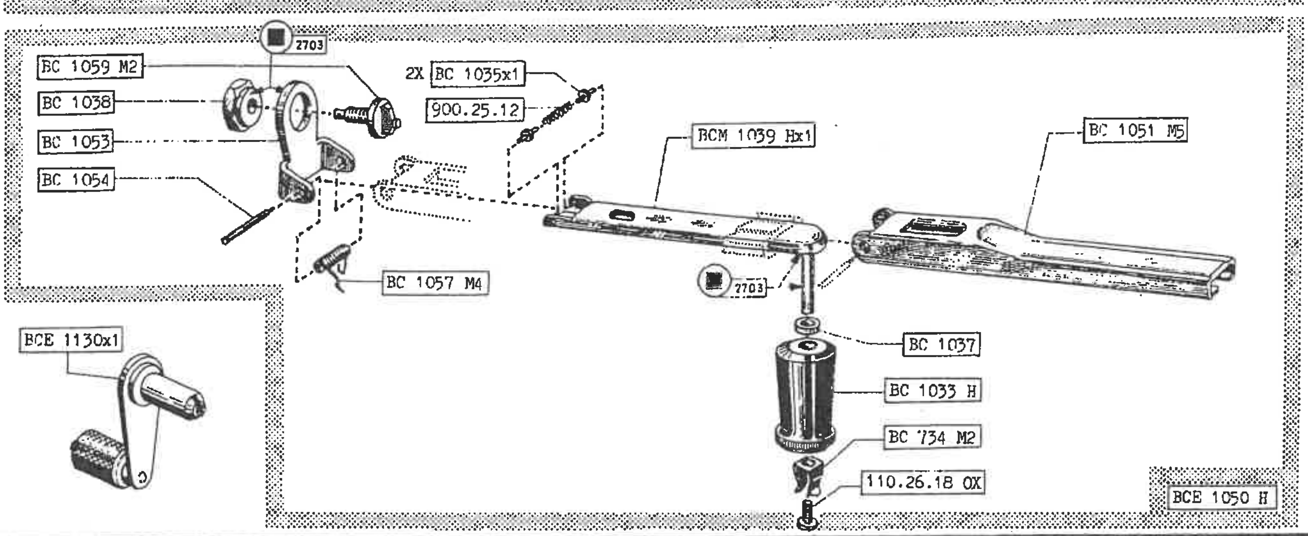
H16

251501 ⟹

BOLEX



BCE 11·3 H M14
BCE 11·3 K M5 *



BCE 1050 H

H 3 | 01.71 | ✳

*(F) Pour caméra avec support pour magasin 120 m

*(D) Für Kameras mit Ansatzstück zur Verwendung der 120 m Kassette

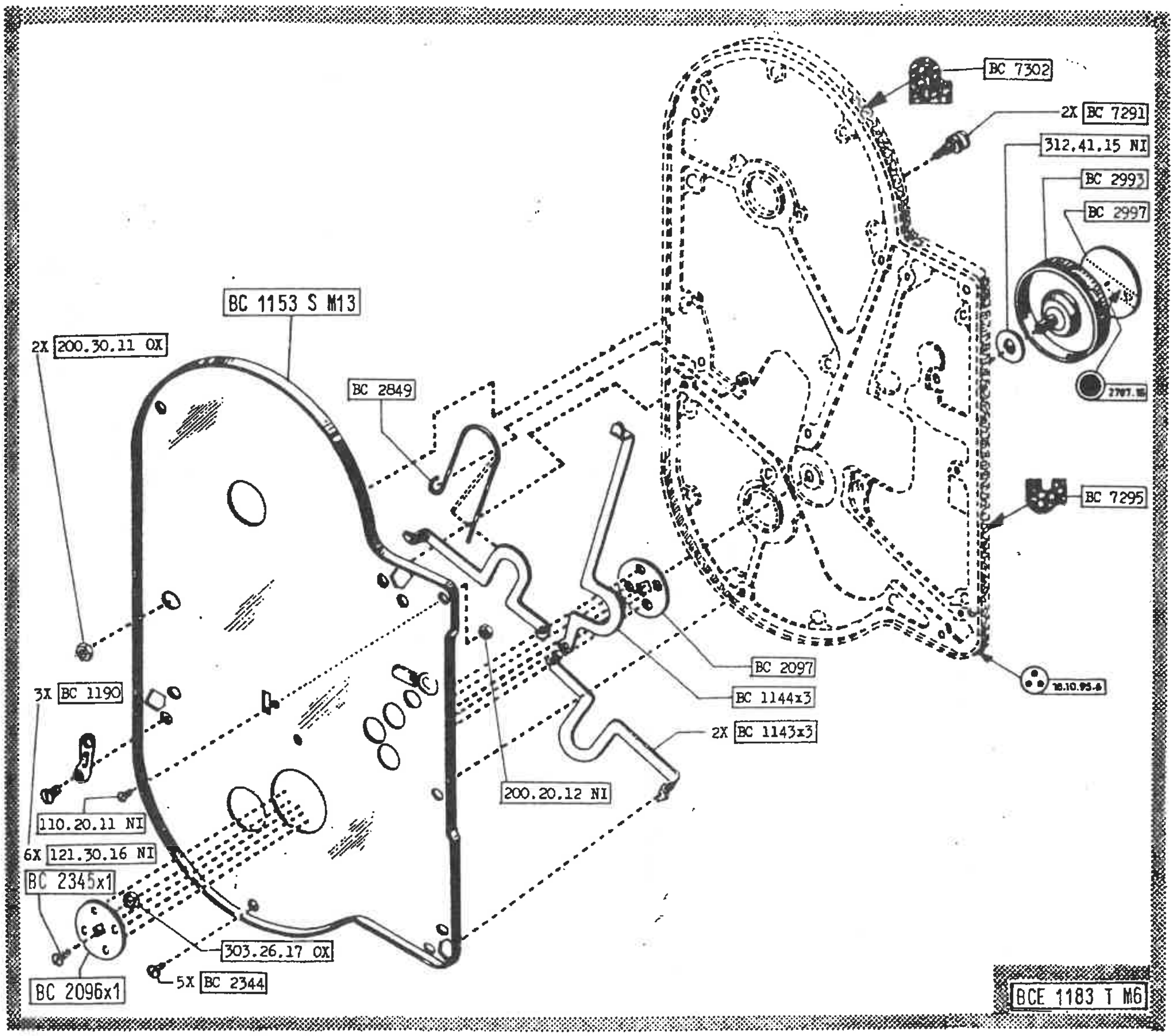
*(E) For cameras with support for the 400 ft magazine

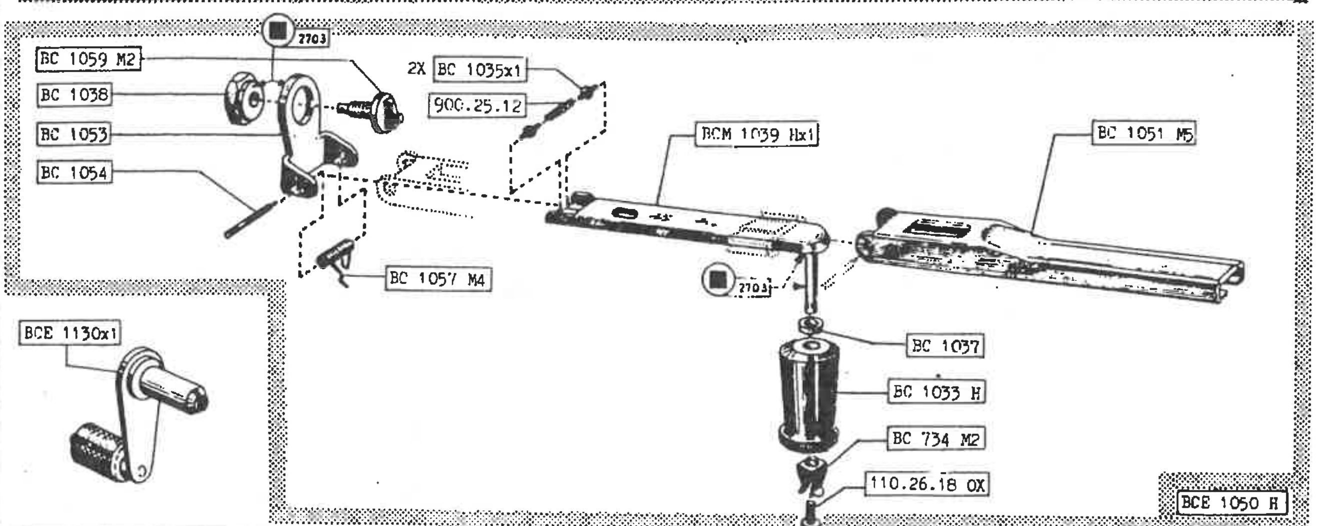
D | 1

PD Couvercle - Manivelle / Deckel - Aufzugskurbel / Lid - Rewinding handle

H16 SBM
H16 RX5
350 001→

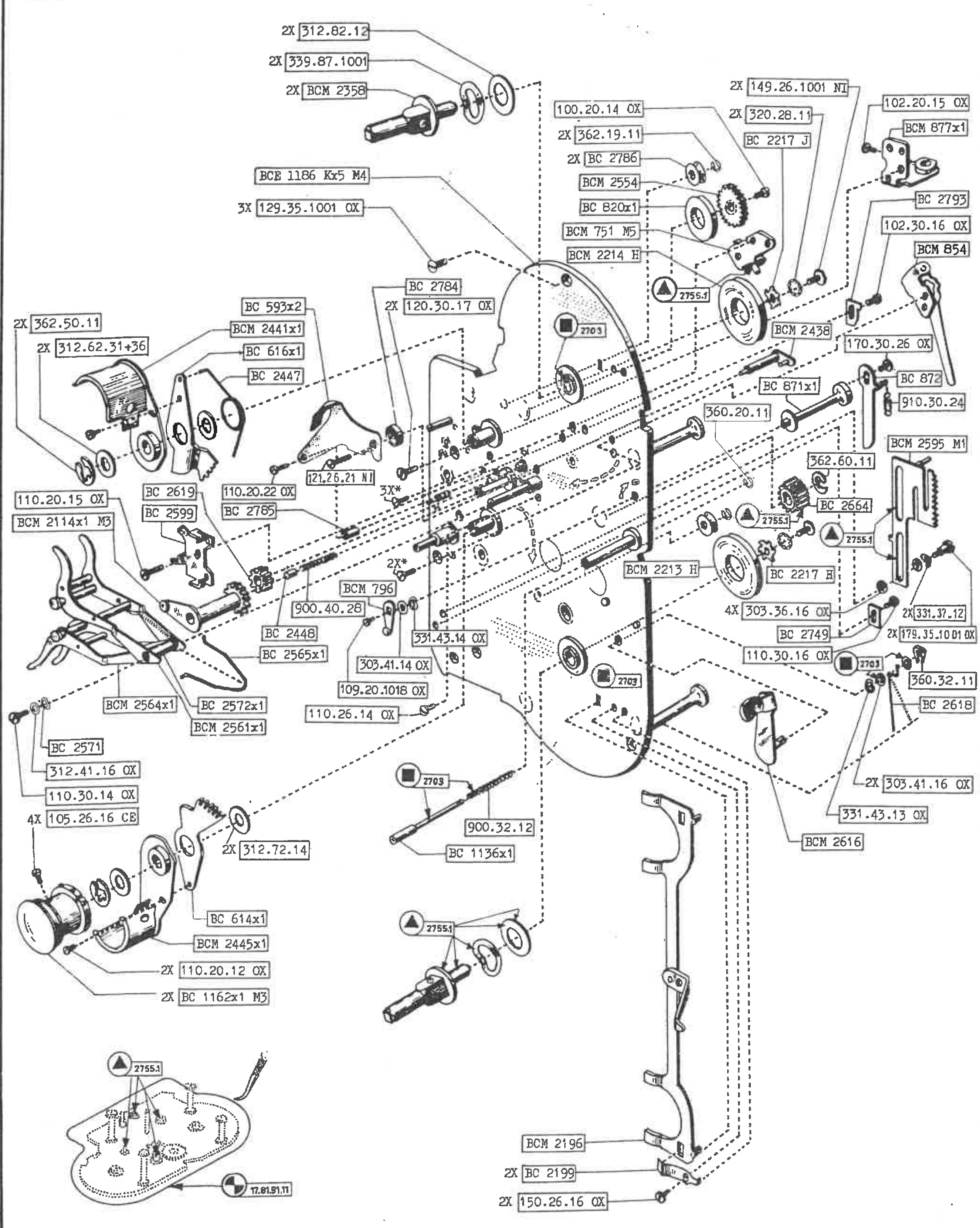
BOLEX



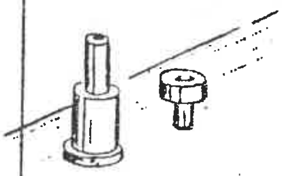
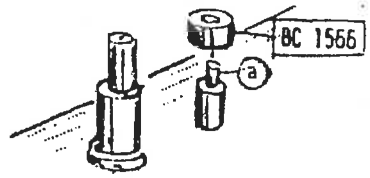


H 3	12.77	*	(F) Gainages (D) Belederung (E) Leathering — 2707.47, 2707.48	D	1.1

PD	Platine supérieure Obere Werkplatte Upper base plate	H16RX4 / H16SB 251.501	BOLEX



FM	Platine supérieure Obere Werkplatte Upper base plate	H16 RX4/H16 SB 251 501 →	BOLEX

	Anciennes pièces Alte Teile Former parts	Nouvelles pièces Neue Teile New parts	Observations Bemerkungen Remarks
1	(1) (BCE 1186 Kx5 M4 †) 	(2) BCE 1186 Kx5 M5 | 2/1 [BC 1566]  	F) La colonne (a) butée de la griffe marche avant comporte un canon amovible. D) Die Hülse des Anschlagstiftes (a) des vorderen Greifers kann.abgenommen werden. E) Separable sleeve on the stop (a) of the forward motion claw. 05.72
2	4X 303.36.16 OX	4X 303.36.16 OX (N)e=0,2 14 OX e=0,3	F) Rondelle supplémentaire à choix. D) Zusätzliche Scheibe. E) Supplementary washer. 05.72

1. Upper working plate

1.1 Sprockets (fig. 1)

Place sprockets (a) in raised position by means of tool BJ 1503 and slightly tighten one screw (b) in view of the adjustment of the automatic loading.

1.2 Loop formers (fig. 1)

Loosen the 2 screws (d) and bring lever (c) in open position of the loop formers.
Position and let the lower loop former (e) rest against the film gate and place the upper loop former (g) at short distance of the inclined plane of the film gate. Tighten screws (d).

1.3 Automatic loading (fig. 2)

Preparation as per fig. 2, camera mounted.
Disengage the motor clutch, set the lateral release button on M.
Operate the mechanism with the handcrank.
Load on a length of film previously cut with the built-in cutter.
The film must be guided by the loop former into a longitudinal position, so that the claw easily enters the film perforation. Adjust if necessary by modifying the angular position of the upper sprocket.
When guided by the lower loop former, the film must engage freely with the sprocket teeth without displacing the sprocket guide. Adjust if necessary by modifying the angular position of the lower sprocket.
Carry out several test loadings at a speed of 18 f./s.
The film must feed through the camera freely without jamming nor catching.
When the loop formers are open, the loops must keep their original shape, no matter whether the camera is operated in forward or reverse motion.

1.4 Sprocket guides (fig. 3)

Act with tool BJ 824 on the column of each sprocket guide so as to obtain a space of 2 film plies from the sprocket.

1.5 Spool axle (fig. 4)

The torque at the lower spool take-up spindle measured in forward motion at 18 f./s and of the upper spool axle measured in reverse motion on pulley BJ 1703 must be of :

$$100 \begin{smallmatrix} +20 \\ -40 \end{smallmatrix} \text{ g}$$

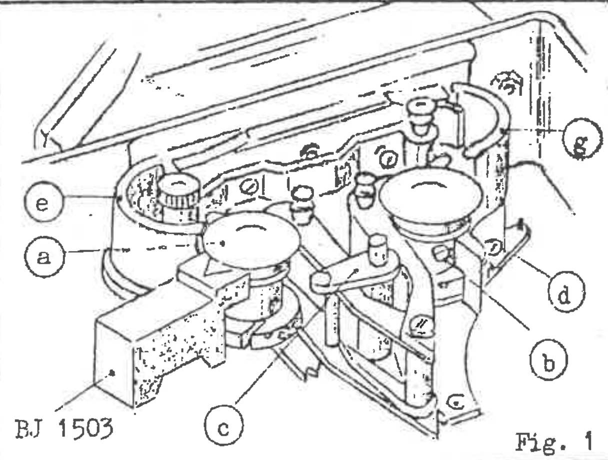


Fig. 1

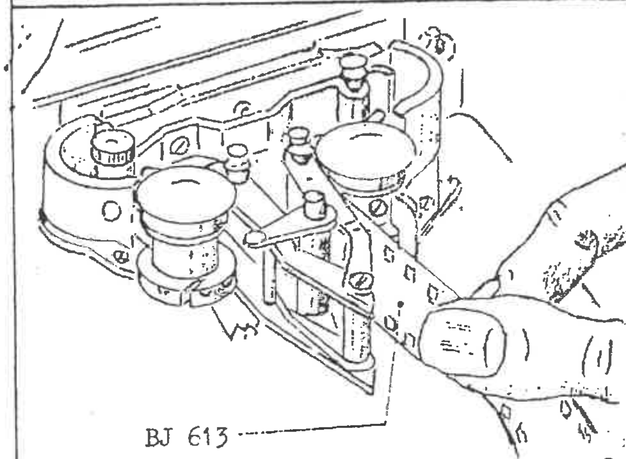


Fig. 2

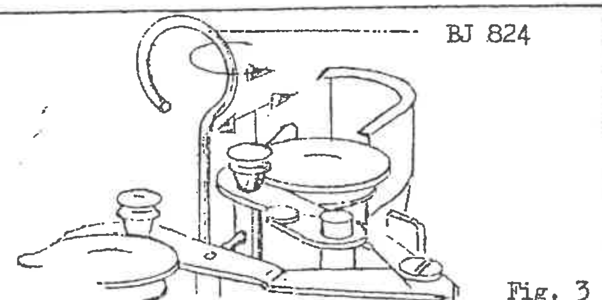


Fig. 3

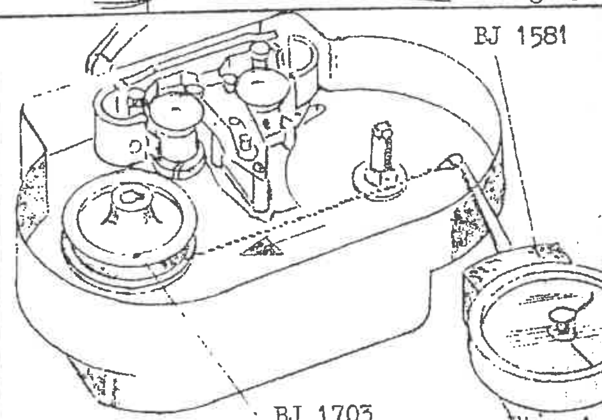
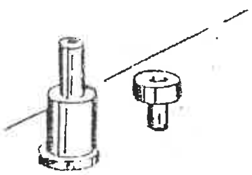
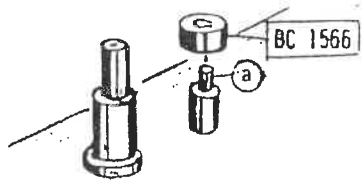
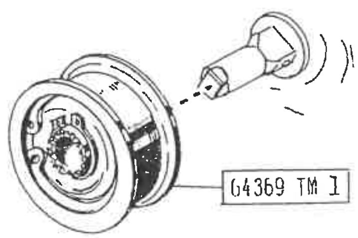
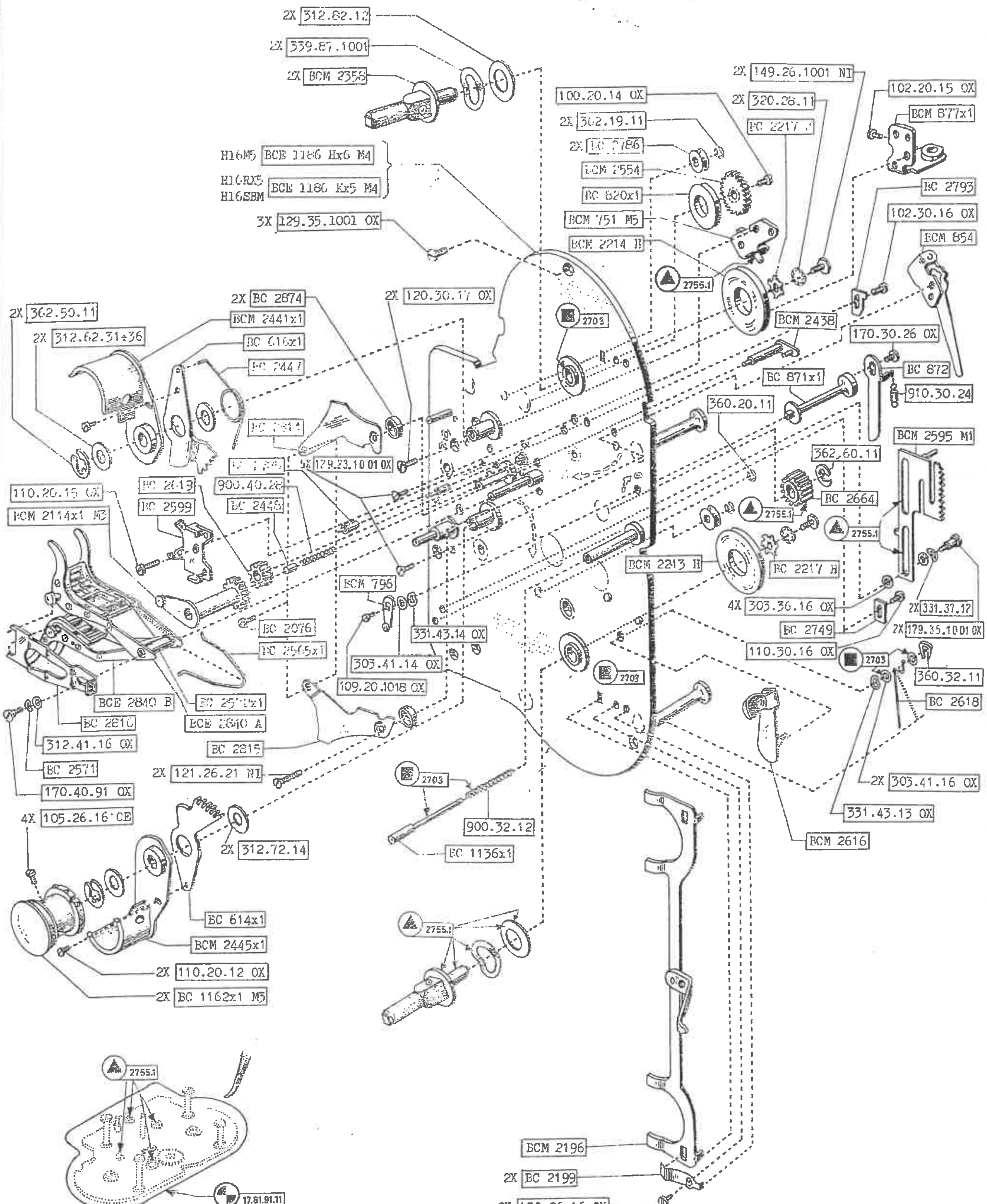


Fig. 4

FM	Platine supérieure Obere Werkplatte Upper base plate	H16RX5/M5/SBM 251 501 →	BOLEX

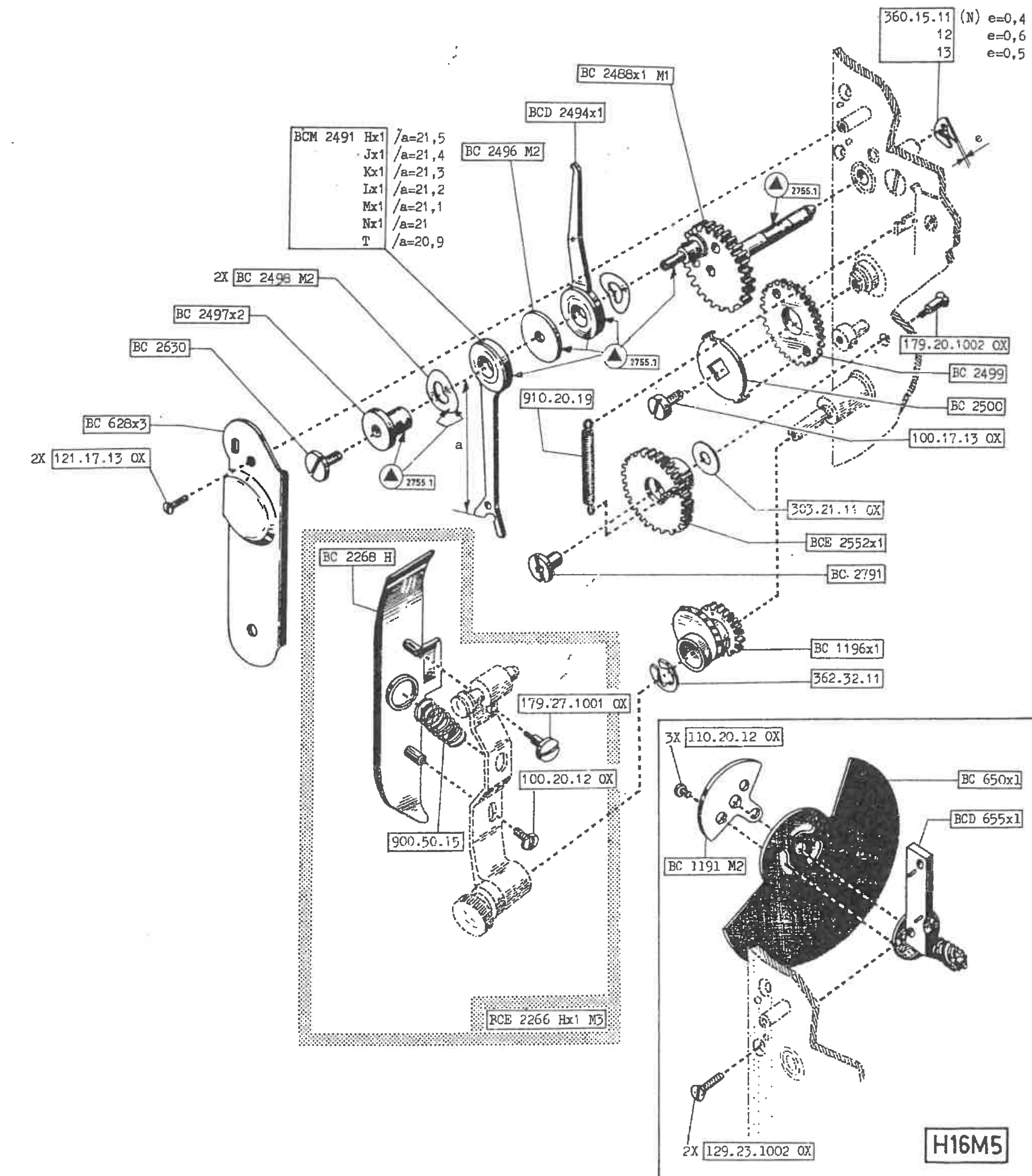
	Anciennes pièces Alte Teile Former parts	Nouvelles pièces Neue Teile New parts	Observations Bemerkungen Remarks
1	① (BCE 1186 Kx5 M4 †) 	② BCE 1186 Kx5 M5 I 2/1 BC 1566 	F) La colonne (a) butée de la griffe marche avant comporte un canon amovible. D) Die Hülse des Anschlagstiftes (a) des vorderen Greifers kann abgenommen werden. E) Separable sleeve on the stop (a) of the forward motion claw. 05.72
2	4X 303.36.16 OX	4X 303.36.16 OX (N)e=0,2 14 OX e=0,3	F) Rondelle supplémentaire à choix. D) Zuzätzliche Scheibe. E) Supplementary washer. 05.72
3			F) Galet de centrage pour l'utilisation avec le magasin 120 m. D) Zentrierrolle für die 120 m Kassette. E) Centering roller for the 400 ft. magazine. 12.77
4	BC 2874	BC 2784	F) Erreur d'impression. D) Druckfehler. E) Misprint. 12.77

PD	Platine supérieure Obere Werkplatte Upper base plate	H16RX5 / H16M5 H16SBM 251 501 →	BOLEX



H 3	01.71	*	(F) Pour caméras avec support pour magasin 120 m (D) Für Kameras mit Ansatzstück zur Verwendung der 120 m Kassette (E) For cameras with support for the 400 ft. magazine	E	2

PD	Griffe Volet presseur Greifer Filmandruckplatte Claw Pressure pad	H16 251 501 ⟹	BOLEX



H 3	01.71	✳		F	1

FM	Griffe volet presseur Greifer Filmandruckplatte Claw Pressure pad	H16 251 501 →	BOLEX

Anciennes pièces Alte Teile Former parts	Nouvelles pièces Neue Teile New parts	Observations Bemerkungen Remarks
~~2755.1~~	2703 No. 254 001 →	(F) Modification du graissage des frictions des griffes marche avant et arrière, la graisse 2755.1 est remplacée par l'huile 2703. (D) Aenderung des Schmiermittels für den Vorder- bzw. Ruckwärtsgreifer. Fett 2755.1 wird durch Oel 2703 ersetzt. (E) Lubrification of forward and backward motion claws modified : grease 2755.1 replaced by oil 2703. 06.71

H3	06.71	*	PD - F - 1 - 01.71	1

1. Claw

1.1 Adjusting the framing (fig. 1)

Insert the test pressure pad BJ 1514x1 in place of the normal pad.
Load the camera with a length of test film.
Light up the taking aperture from the outside.
Seen from the inside, the edges of the aperture must lie at equal distance from the middle of the perforation when the claw retracts.
In case of need, select the correct claw in order to achieve the adjustment.

1.2 Friction torque of the claws on the film (fig. 2)

While refitting the claw assembly onto the eccentric axle, adjust the friction torque on the film by means of the spring washers and run in the assembly by operating the camera for about 10 times of the spring motor capacity.
Place the claw assembly on platform H16 of tool BJ 1572 M1.
Rotate the disk in the direction of the red or white arrow, depending on which of the forward or backward motion claw is checked, on which occasion these must rest against the feeler of the dynamometer.
The friction torque shown by the dynamometer must be of

11 ± 2 g

- for the forward motion claw, and

7 ± 1 g

- for the backward motion one.

This checking may also be carried out when the camera is mounted. For this purpose, remove the claw protection.
Disengage the mechanism so as to operate the camera with the handcrank for reverse motion.
Place tool BJ 1572 M1 onto the camera as per fig. 3, so that the feeler of the dynamometer lies :
- opposite the forward motion claw (a)
- opposite the backward motion claw (b).
This checking may be effected by simply rotating the dynamometer, so that the claw moves freely in front of the film gate.

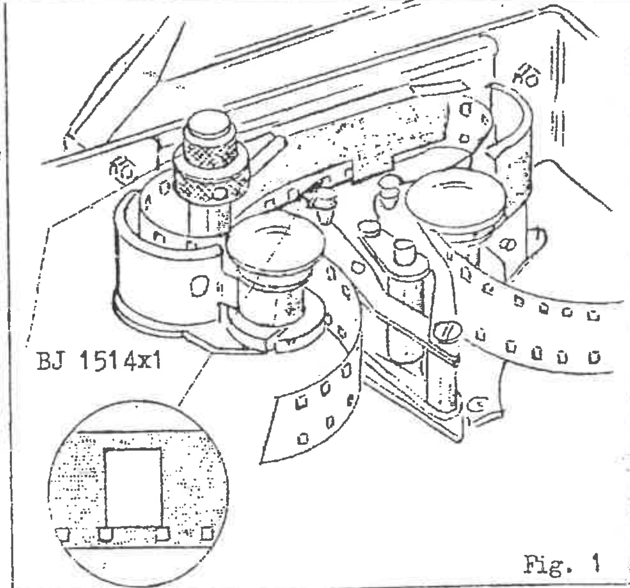


Fig. 1

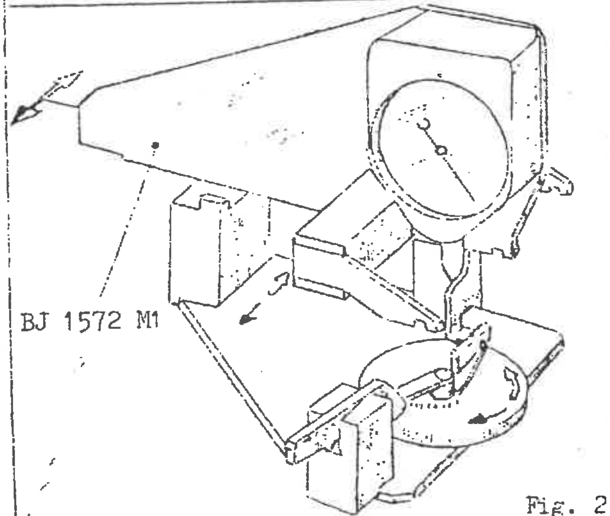


Fig. 2

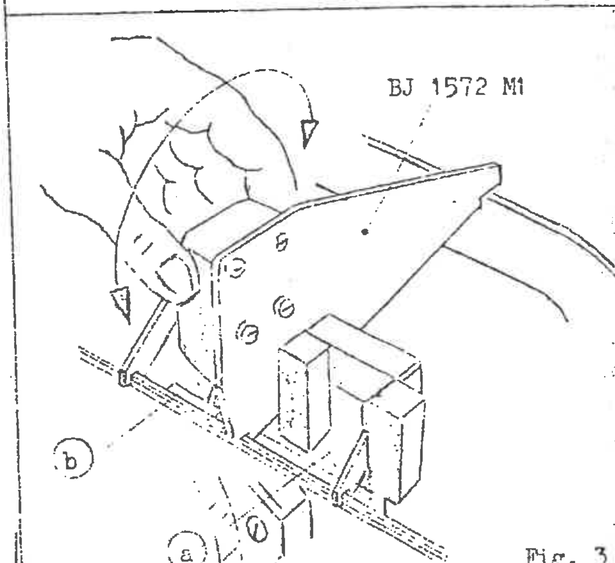


Fig. 3

1.3 Fastening the forward motion claw (fig. 4)

Install the eccentric shaft (c) and adjust the axial play to 0.05 mm.
Wind the spring motor a few turns and operate the camera through the frontal release knob.
Fit the nylon gear (a) and the washer with the square-shaped hole (b), making sure that the eccentric (c) is inclined as per sketch.
The angle displacement (d) must be of 1 tooth.

1.4 Lateral centering of the claws (fig. 5)

State of the camera as above.
Move screw (a) by means of a screwdriver until the eccentric axle gets in extreme right hand position.
Pull both claws backwards.
Insert gauge BJ 1121 between the lateral film guides into gate, so that edge (k) lies opposite the housing seam.
Center the tip of the forward motion claw by slightly twisting with tool BJ 1129, so that it runs for a full cycle in the calibrated slot (c) between points (e) and (f).
Similar centering of the backward motion claw between points (g) and (h) of calibrated slot (d).

1.5 Loop catcher (fig. 6)

Wind the spring motor a few turns and operate the camera through the frontal release knob.
Set loop former (l) on toothed wheel (m) at an angle of 15...45° which corresponds to 1 to 3 teeth of the toothing.
The loop catcher must move freely and reform a loop after 2 lost images.

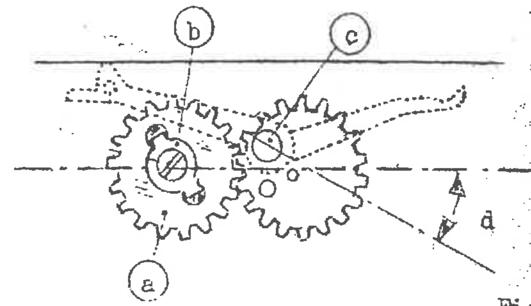


Fig. 4

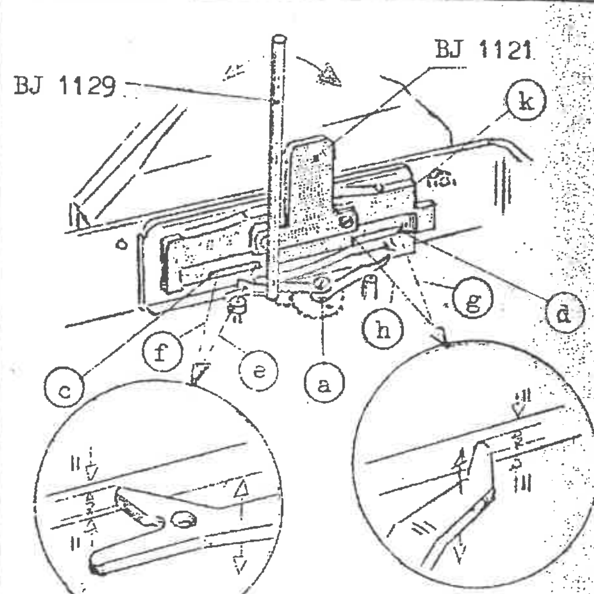


Fig. 5.1
Fig. 5.2
Fig. 5

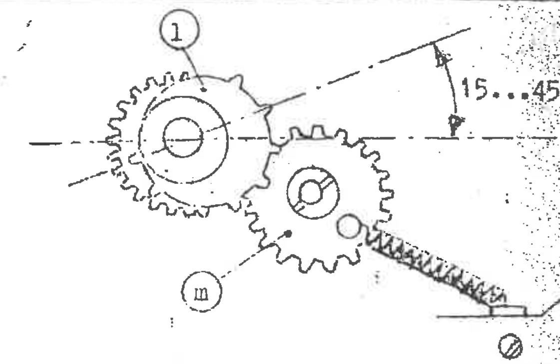


Fig. 6

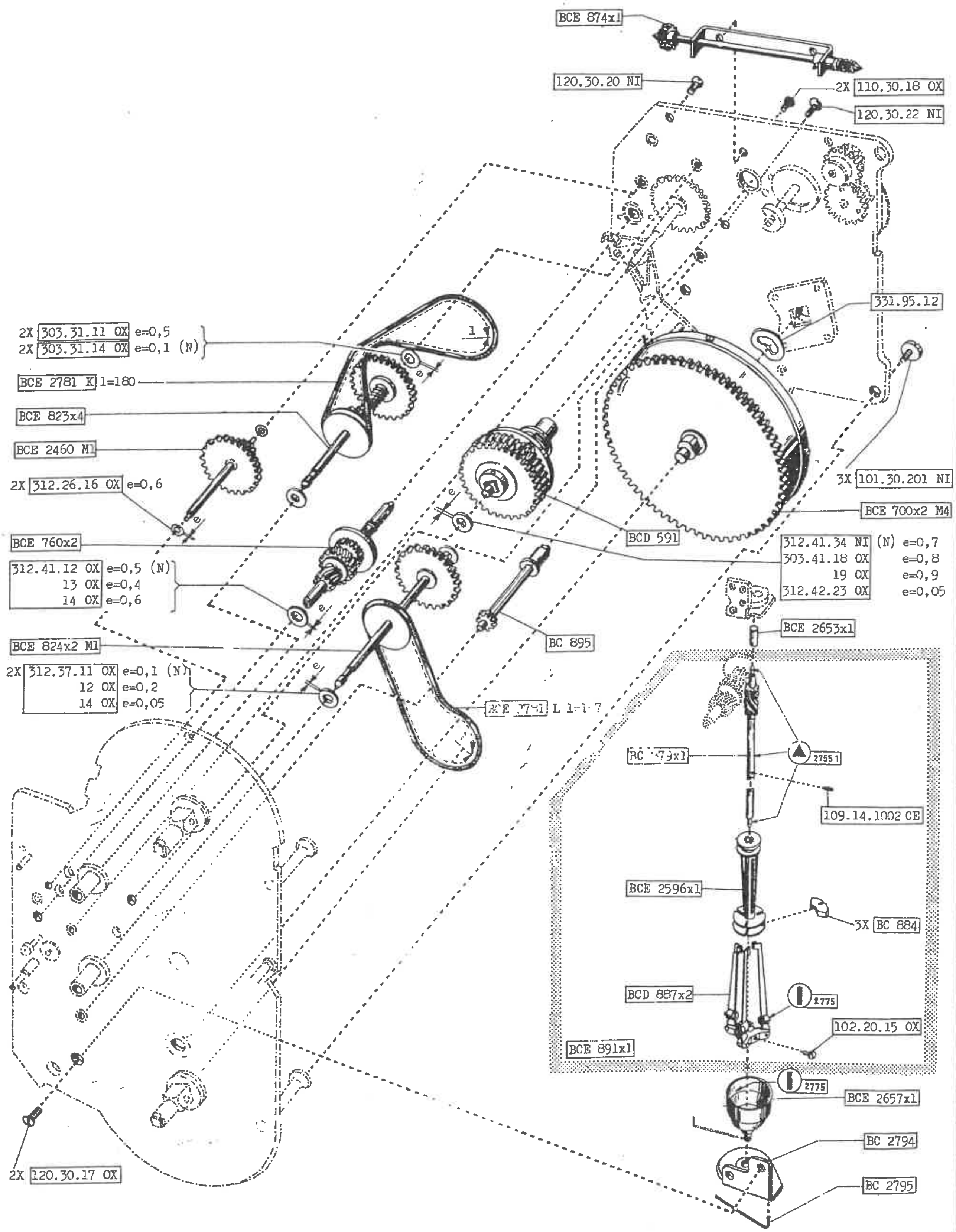
PD

Mecanisme
Mechanismus
Mechanism

H16

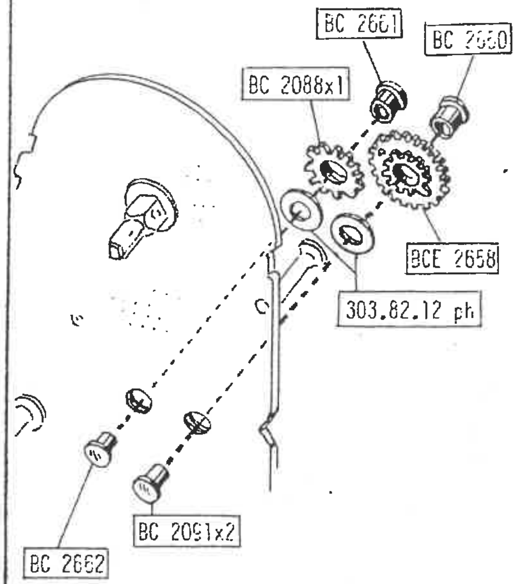
251 501 ⟹

BOLEX



(F) Tous les engrenages et pivots sont graissés avec
(D) Fetten aller Zahnräder und Stifte mit
(E) Grease all gears and pins with
} 2755 1

FM	Mécanisme Mechanismus Mechanism	H16 251 501 →	BOLEX

	Anciennes pièces Alte Teile Former parts	Nouvelles pièces Neue Teile New parts	Observations Bemerkungen Remarks
1			F) Les 2 engrenages accouplés, faisant office de butée pour limiter le déroulement du barillet sont dorénavant livrables avec axes, moyeux et rondelles à fixer par rivetage sur la platine supérieure. D) Die 2 als Anschlag für die Federabwicklung dienenden, gekoppelten Zahnräder können zukünftighin separat bestellt werden. Zwecks vernietung derselben auf der oberen Werkplatte werden auch die dazu passenden Wellen, Naben und Scheiben geliefert. E) The 2 coupled gears serving as a stop for the unwinding of the spring are available separately with the corresponding shafts, hubs and washers to be riveted on the upper working plate. 04.76

Anciennes pièces Alte Teile Former parts	Nouvelles pièces Neue Teile New parts	Observations Bemerkungen Remarks
	H16 RX 4 240 815 → 250 801 H16 RX 5 241 369 → 252 150 H16 M 5 251 800 → 253 387 H16 SB 300 201 → 300 901 H16 SBM 300 001 → 300 072	F) Un barillet légèrement plus faible a été monté sur une série de caméras dont les Nos se trouvent indiqués dans la colonne ci-contre. Nous vous recommandons d'effectuer un calage renforcé selon chapitre 3. Redescendre de 1/2 tour et non de 1 tour. D) Auf eine gewisse Serie von Kameras, deren Seriennummern nebenstehend angeführt sind, wurde ein leicht schwächeres Federwerk montiert. Wir empfehlen Ihnen, die Einkeilung laut Kapitel 3 zu verstärkern. Eine halbe statt eine ganze Umdrehung ablaufen lassen. E) A slightly weaker spring motor has been mounted on certain cameras, the serial numbers of which are indicated in the margin. We recommend that you reinforce the quoin as per chapter 3. Let the spring unwind only one half and not one complete revolution. 11.71

1. Separating the working plates

Prior to this operation, let the motor spring run down completely after having disengaged pinion (a) (fig. 3) which connects the spring motor to gear wheel (b).

2. Assembling the working plates

The various components of the complete drive mechanism are held in place by the upper and lower working plates. For the assembling, prepare :

- The upper working plate as per fig. 1, without speed governor.
- The lower working plate as per fig. 2, without the control axle of footage counter.
- Adjust the axial play to 0.05 mm by means of the necessary washers.
- Use hook BJ 1521 to connect the belt of the lower sprocket axle to the pulley of the lower spool axle.

3. Aligning the spring motor (fig. 3)

For this alignment, the mechanism must be completely assembled.

- Separate pinion (a) from gear wheel (b).
- Fully wind the spring motor and let it run down just one revolution.
- Hold the mechanism via the stopping axle.
- Turn gear wheel (b) fully home to the stop, direction as per arrow.
- Engage pinion (a) into gear wheel (b) and insert clip (d).
- Free the mechanism and check that the spring motor makes

8 revolutions

4. Clutch mechanism (fig. 4)

In the "engaged" position, the fork must be able to swivel freely.
In "disengaged" position, teeth (g) must separate completely from teeth (h).
Adjustment is to be done by slightly bending fork (e) in the appropriate direction by means of twister BJ 1502.

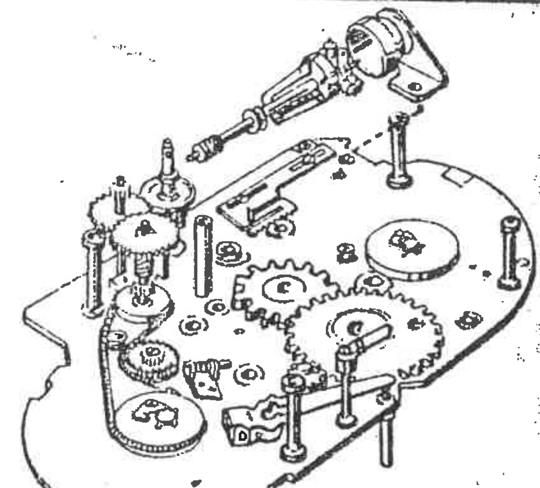


Fig 1

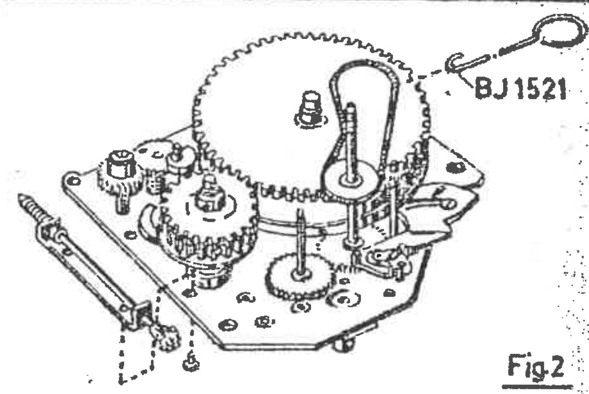


Fig.2

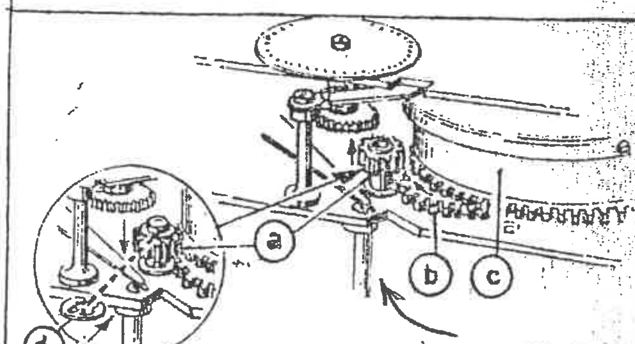


Fig.3

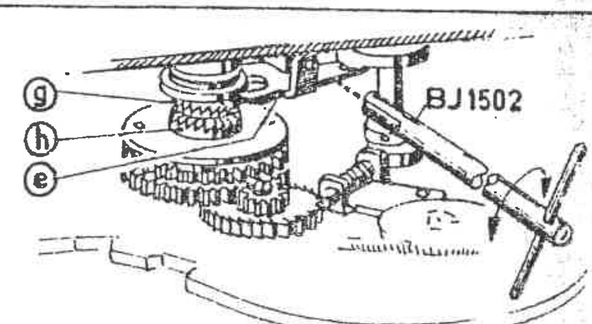


Fig.4

5. Resistant torque of the mechanism (fig. 5)

This measurement is to be carried out by means of pulley BJ 1508x1 placed on the handcrank axle with dynamometer BJ 703, as well as the claws retaining plate BJ 1568.
The maximum values accepted are as follows :
- mechanism complete without claw = 130 g
- mechanism complete with claw = 320 g
- camera complete = 320 g

6. Adjusting the speed

Preparation of the mechanism as per chapter 2, outside of the housing. To carry out the operation, adjust the governor drags in high position so as to reach the speed of 64 f./s on the stroboscop disk mounted on the hand-crank axle, as per fig. 8.
Use tool BJ 1579 M1 for the adjustment with the file or with machine BJ 1109 which provides for the adjustment through dynamic milling.
See the corresponding IT sheet in catalogue OU.

Fig. 6
At the beginning of the adjustment, apply a very thin layer of Molykote powder BJ 1058 with a small brush on the drags at (g), as well as at the annular surface (h) of the bell.
Fit the governor into the camera, wind the spring motor fully and let it run down completely.
Repeat this 3 times at the highest camera speed. Having completed the adjustment of the running speed of 64 f./s, remove the governor and clean the annular surface of the bell at (h) with a soft cloth.
The Molykote powder must remain on the drags at (g).
Caution : The governors dry-lubricated with Molykote powder must on no account be oiled.

Fig. 7
Fit the governor into the camera.
- Adjust the speed 64 f./s with stop (o).
- Adjust the speed 12 f./s with stop (m).

7. Calibrating the speed setting knob (fig. 8)

On the complete camera loaded with a test film, place the respective stroboscop disk comprising both a minimum and a maximum scale, allowing the adjustment of the speed setting knob.
There are 3 engraved and 1 virgin speed knobs.

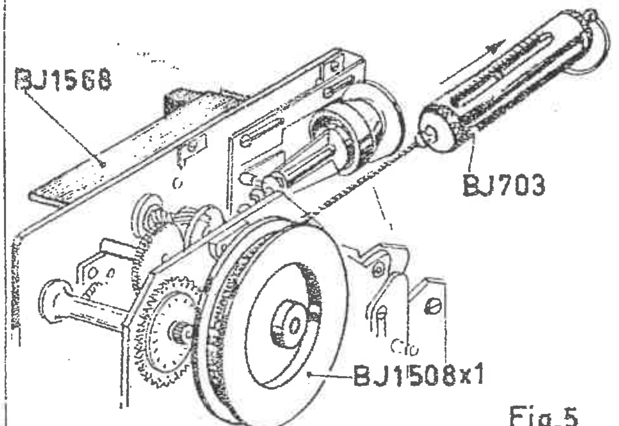


Fig.5

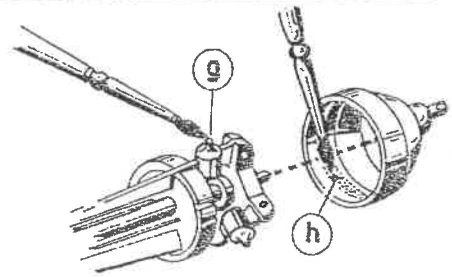


Fig.6

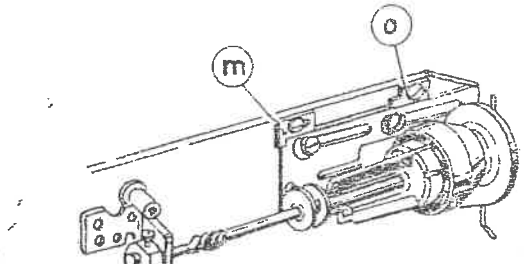
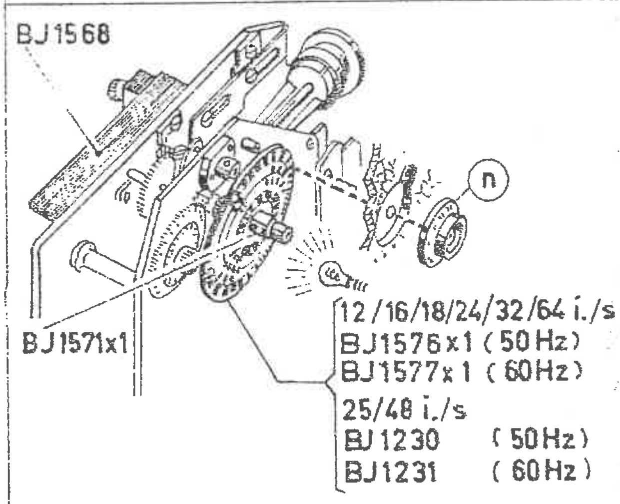
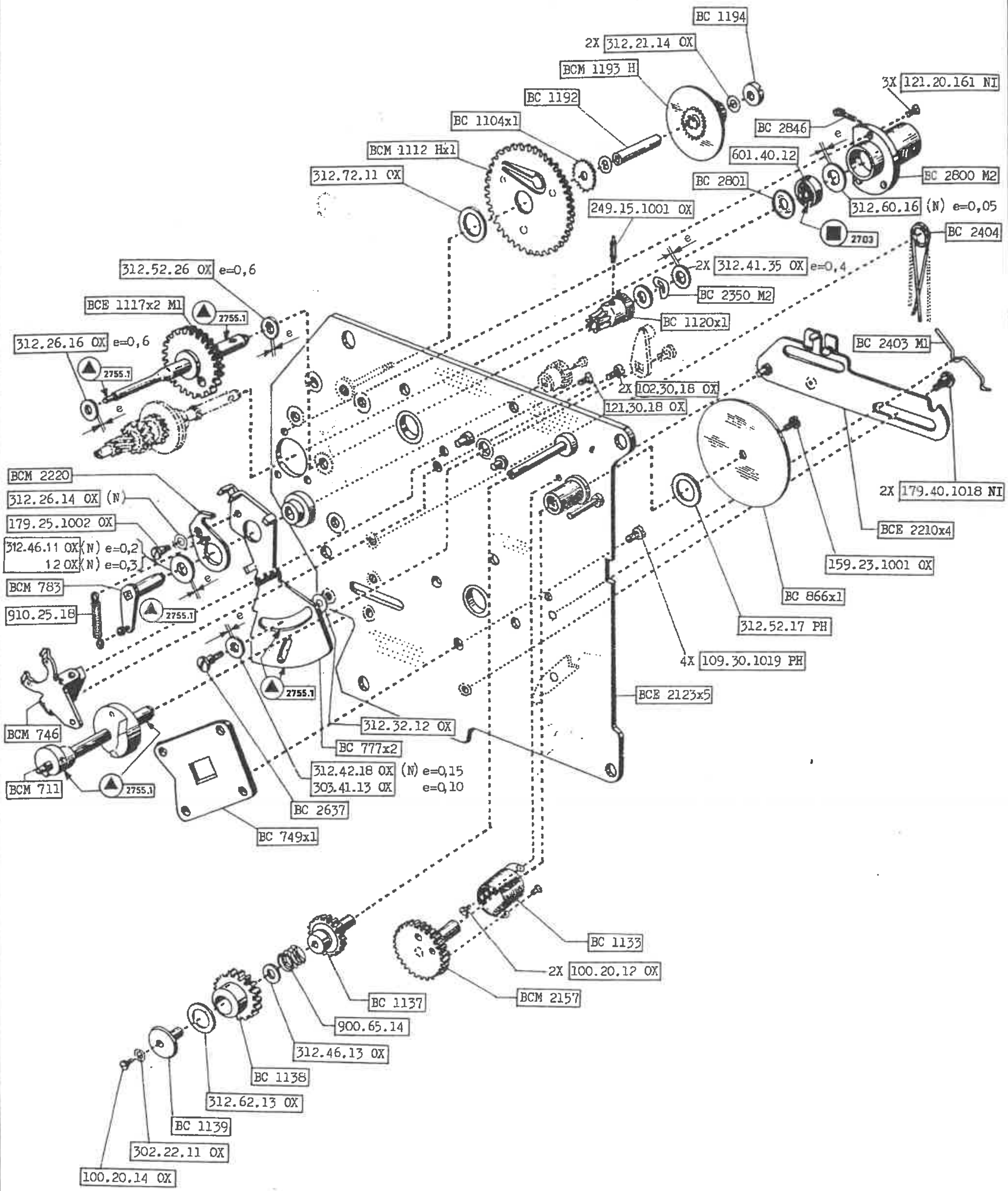


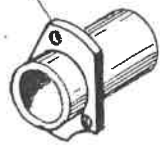
Fig.7



PD	Platine inférieure Untere Werkplatte Lower base plate	H16 251 501 →	BOLEX



FM	Platine inférieure Untere Werkplatte Lower base plate	H16 251 501 →	BOLEX

	Anciennes pièces Alte Teile Former parts	Nouvelles pièces Neue Teile New parts	Observations Bemerkungen Remarks
1	1 (BC-2800 M2) NI 1/2	(2) BC 2800 M6 I 2/1 	F) Extérieur de la pièce modifié, pour emploi sur toutes les caméras. D) Abgeänderte Aussenseite des Teils zur verwendung auf allen Kameras. E) Modified exterior enabling the use of the part on all cameras. 12.77
2	(312.52.17 PH†) e= 0,5	312.52.31 PH e= 0,6	F) Nomenclature modifiée. D) Teilnummernänderung. E) Part-number modification. 12.77

H 3	12.77	*	PD - H - 1 - 01.71	1

1. Counter (fig. 1)

1.1 The footage counter is driven by the upper sprocket axle via the clutch control spindle (a).
Leave a slight play between the gears.
Load the counter recall spring by about one turn.
The counter automatically returns to zero when the camera is opened, and the m or ft mark must coincide with the line of the dial window.

1.2 The sound counter functions when arm (c) beats the screws of spring motor when lever (d) is positioned as shown on the sketch.

1.3 On the frame counter, the 100s disk (f) must be driven regularly and advance by one 50 frames mark for one turn of the unit disk (e), in whichever direction.

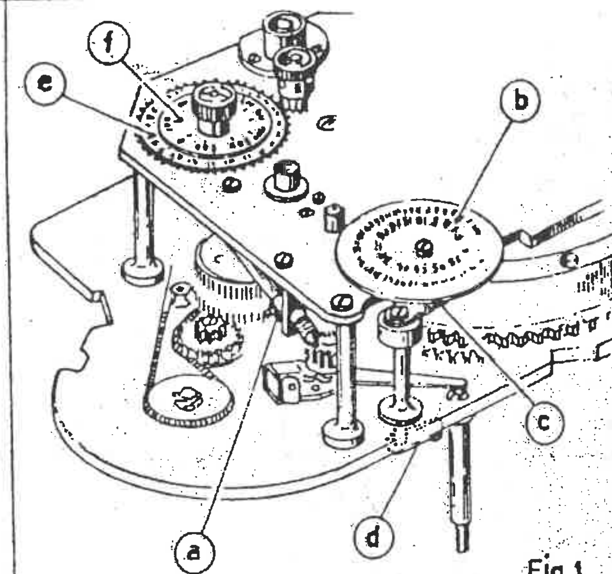


Fig.1

2. Release system

The release system controls :
- the intermittent operation
- the continuous running
- the frame-by-frame operation, snapshot and time exposures.

Check the functioning :
- of the front release button which must return to its original position assoon as finger pressure is relaxed
- of the lateral release button which remain caught in when it is set to position "M" and return to its original position when finger pressure is relaxed, when set to position "P".

3. Driving axles (fig. 2)

Use pincers BJ 1240 which matches with the shaft end into which the pin has to be fitted and allows the latter to be engaged without exerting any force on the 8:1 and 1:1 shafts.
- Pusher A for driving out the pins
- Pusher B for driving in the pins
- Pusher C for fitting and positioning the asymmetric pin on the 1:1 drive shaft.

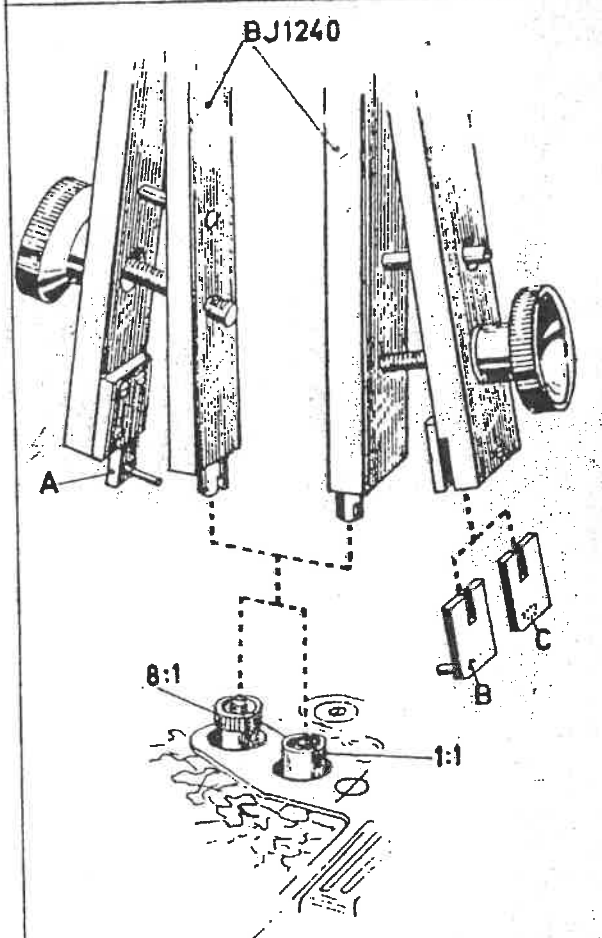
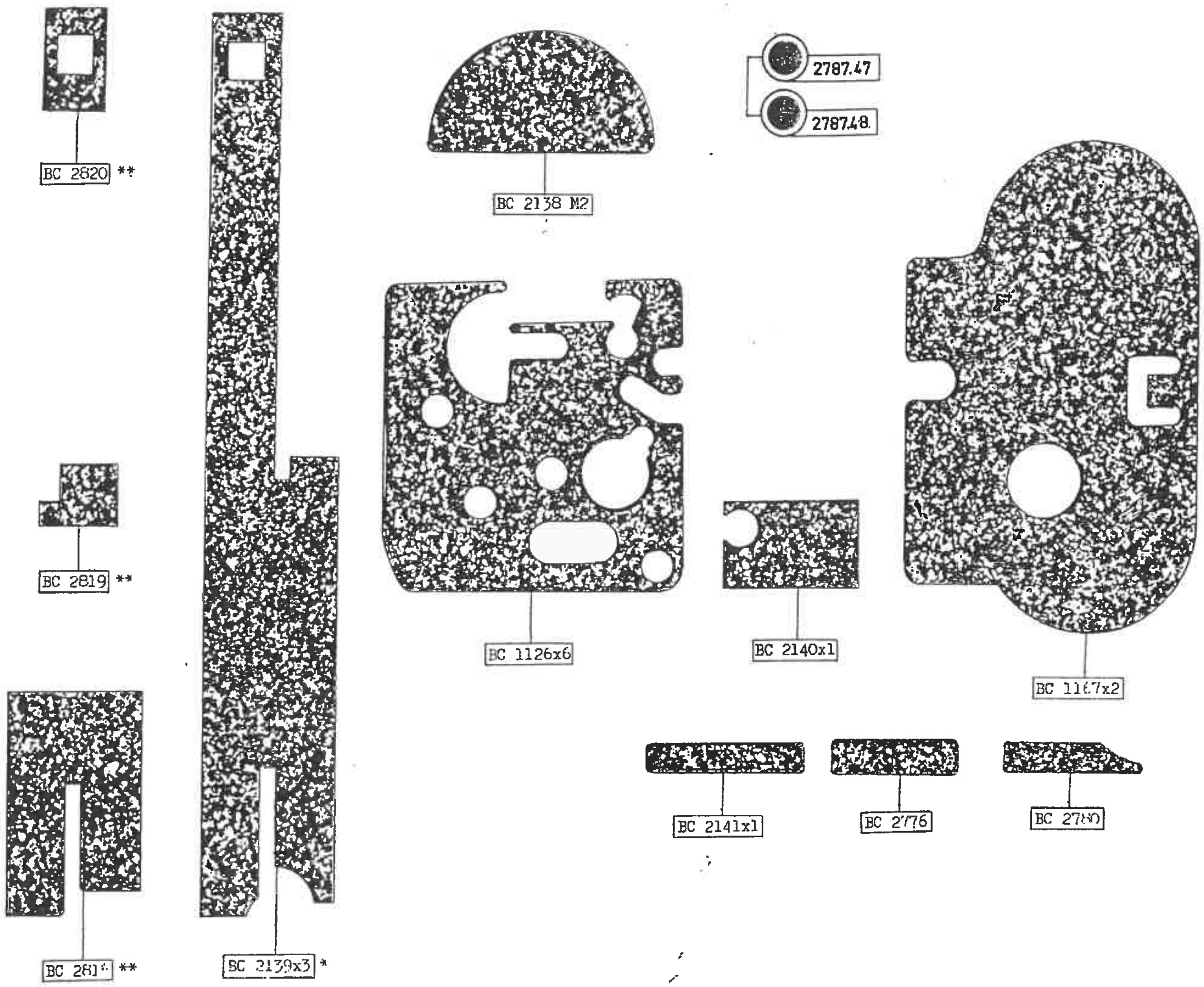
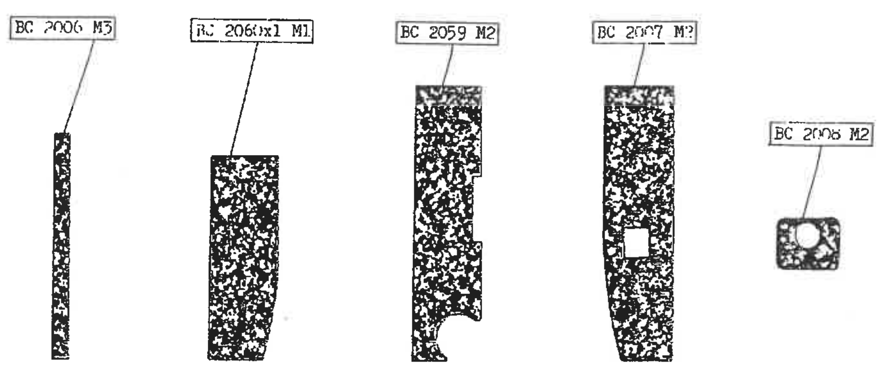


Fig.2

PD	Gaînages Belederung Leathering	H 16 251 501 ⇒	BOLEX

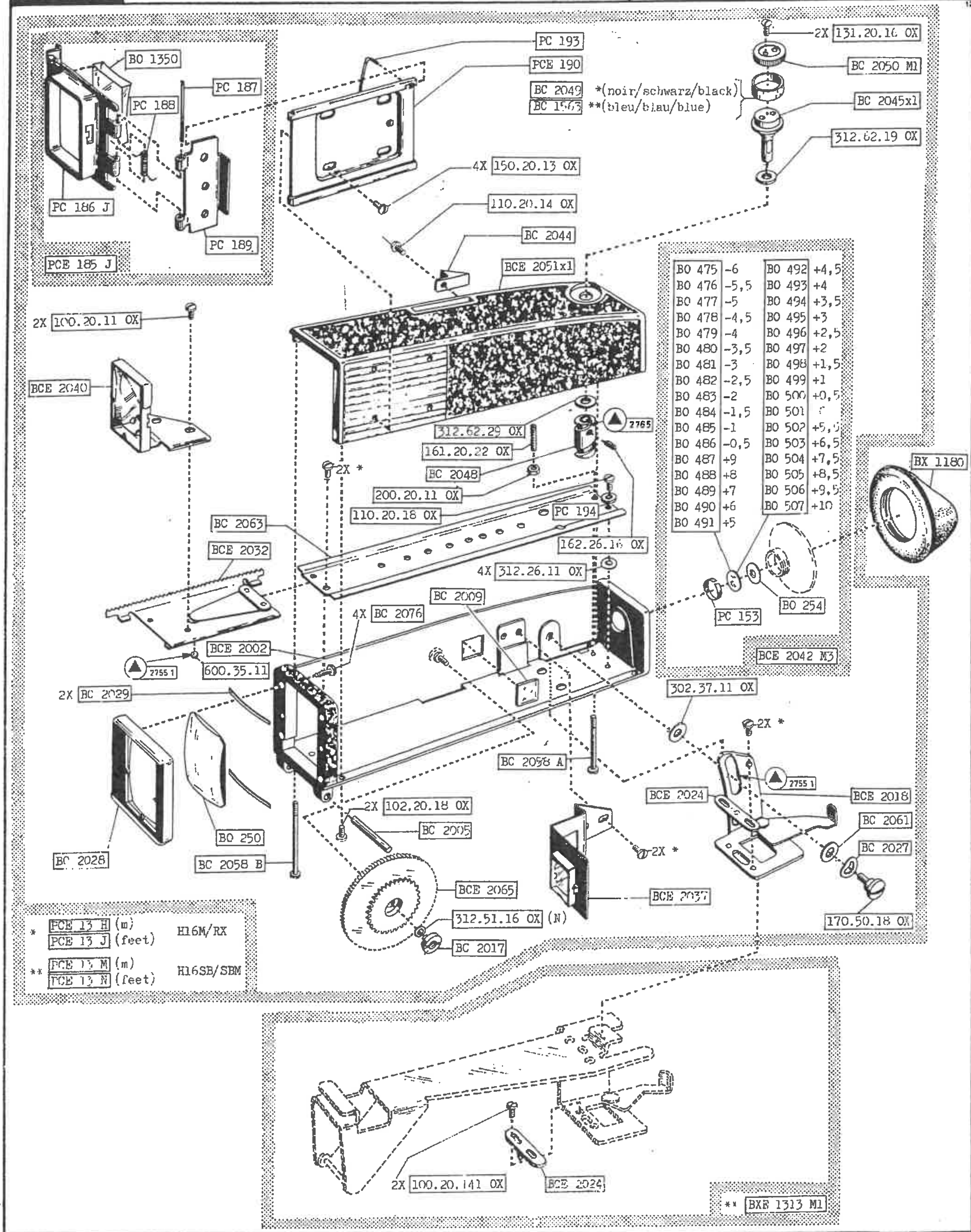


Viseur
Sucher
Wiewfinder



H 3	01.71	*	(F) Pour caméras (D) Für Kameras (E) For cameras } H16RX4 SB * H16RX5 M5 SBM **	J	1

PD	Viseur multifocal -Support Multifocalsucher Halderung Multifocalviewfinder-Support	VIBAT SUMET	H16 251 501 ⟹	BOLEX



BO 475	-6	BO 492	+4,5
BO 476	-5,5	BO 493	+4
BO 477	-5	BO 494	+3,5
BO 478	-4,5	BO 495	+3
BO 479	-4	BO 496	+2,5
BO 480	-3,5	BO 497	+2
BO 481	-3	BO 498	+1,5
BO 482	-2,5	BO 499	+1
BO 483	-2	BO 500	+0,5
BO 484	-1,5	BO 501	0
BO 485	-1	BO 502	+5,5
BO 486	-0,5	BO 503	+6,5
BO 487	+9	BO 504	+7,5
BO 488	+8	BO 505	+8,5
BO 489	+7	BO 506	+9,5
BO 490	+6	BO 507	+10
BO 491	+5		

*	PCE 13 H (m)	PCE 13 J (feet)	H16M/RX
**	PCE 13 M (m)	PCE 13 N (feet)	H16SB/SBM

H3	01.71	*	6X 109.20.1018 OX *	K	1

1. Assembling the viewfinder

1.1 Fitting the guide rail (fig. 1)

When mounted on the viewfinder, disk (a) must be aligned so that number 50 becomes visible and has a central position which may be obtained by displacing guide rail (b). Tighten screws (c).

1.2 Fitting the fixed lens element (fig. 2)

Place tool BJ 1607 and the long gauge into guide rail (b) with a view to positioning the fixed lens element (d) and its support with respect to the front lens element (e).
Progressively tighten screws (g) and precautionously maintain lens element (d) against the gauge.

1.3 Fitting the mobile lens element (fig. 3)

Turn disk (a) to position 50.
Place tool BJ 1607 and the short gauge H16 onto guide rail (b) with a view to positioning the mobile lens element (h) and its support with respect to the front lens element (c).
Progressively tighten screws (g) and precautionously maintain lens element (d) against the gauge.

2. Adjusting the viewfinder on the camera (fig. 4)

- Mount the camera on a steady support in front of a test chart, for instance BJ 159, at a distance of 1.50 m from the film plane.
- Equip the camera with a 75 mm tele lens and focus on the chart.
- Center the taking aperture axis with respect to an horizontal axis which must be at a distance of :

X = 41 mm	for cameras with turret holder
X = 73 mm	for cameras with bayonet mount

On the right-hand side from the viewfinder axis for the adaptation of the multifocal viewfinder on cameras with bayonet mount, the special intermediary support should be used in consequence of the dimention of the lens holder.

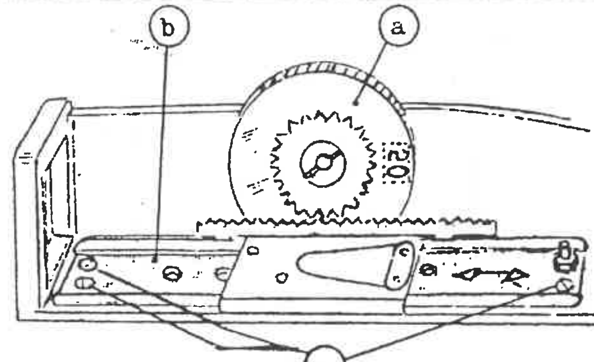


Fig. 1

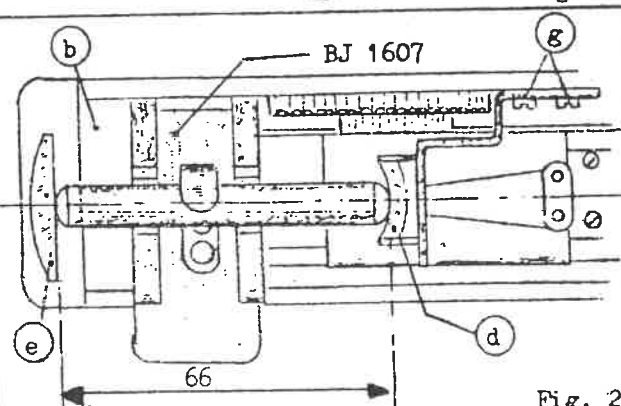


Fig. 2

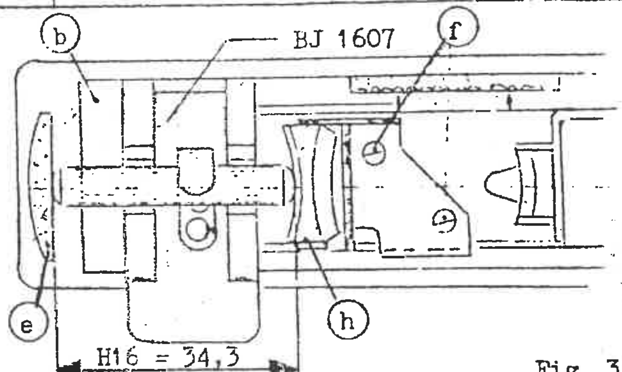


Fig. 3

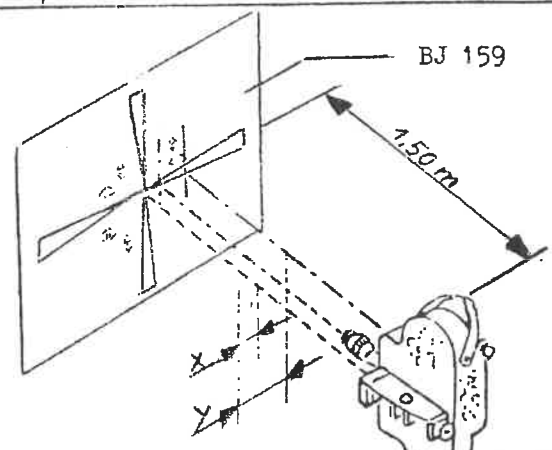


Fig. 4

2.1 Vertical adjustment (fig. 5)

Set disk (a) of the viewfinder to focal length 75 mm. By slightly loosening screws (k), which can be attained through the 2 holes in the guide rail, the rear part of the viewfinder may be moved vertically so that the horizontal marks (l) visible in the viewfinder coincide with the horizontal axis. Yellow horizontal axis on test chart BJ 159.
Check the alignment at the various focal lengths of the viewfinder.

2.2 Horizontal adjustment (fig. 6)

The inclination of the viewfinder with respect to the horizontal plane consists in setting the viewfinder on infinity, position given by screw (n) resting against rivet (o).
Loosen the locking nut and turn screw (n) with tool BJ 1517 so as to obtain the correct centering of the vertical marks (m) visible in the viewfinder with respect to the vertical axis. Yellow vertical axis on test chart BJ 159.
Check the alignment at the various focal lengths of the viewfinder.

2.3 Adjusting the parallax correcting ring (fig. 7)

Fit the viewfinder cover.
Mount the viewfinder on the camera lid, turn the milled knob (r) fully to the right-hand side and align the graduated ring (s), the infinity mark being opposite the line engraved on the lid.
When the viewfinder is fitted to the camera by means of the intermediary support, use the corresponding graduated ring (blue).

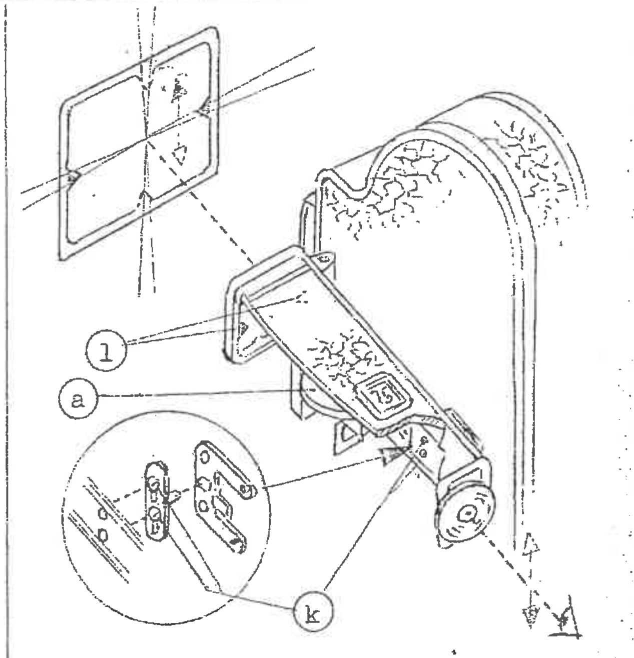


Fig. 5

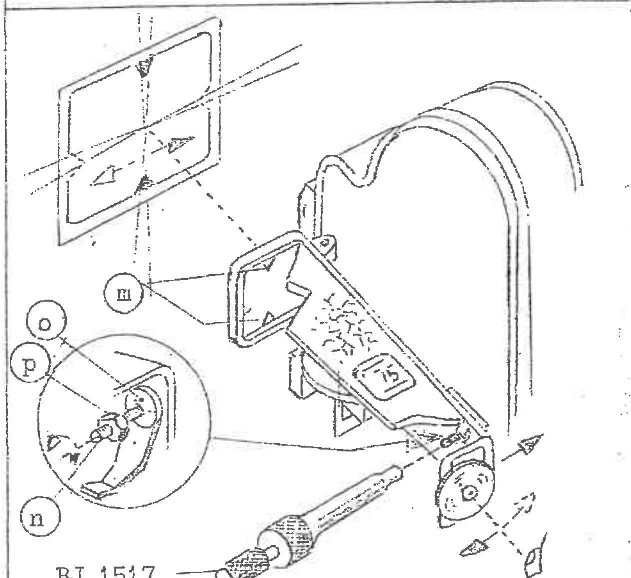


Fig. 6

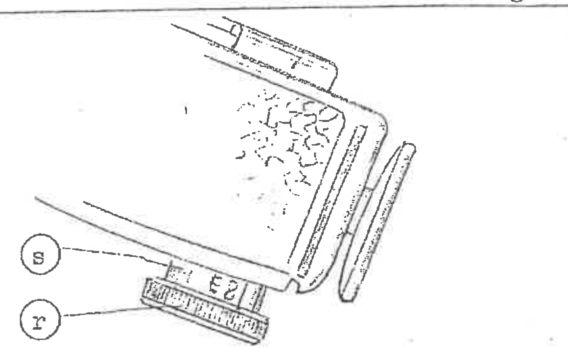
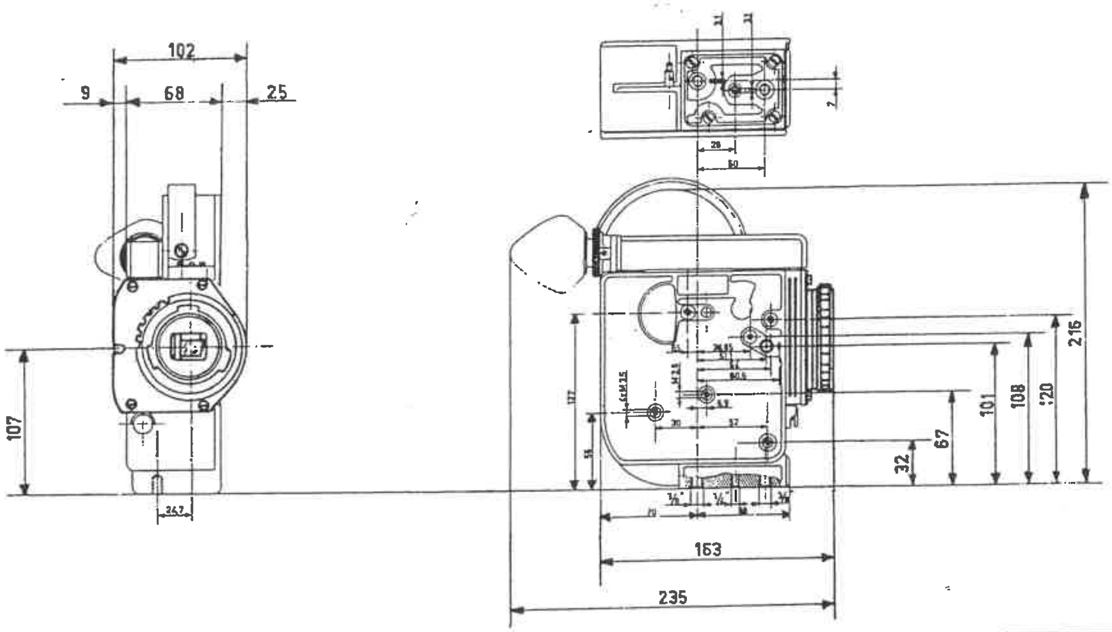


Fig. 7

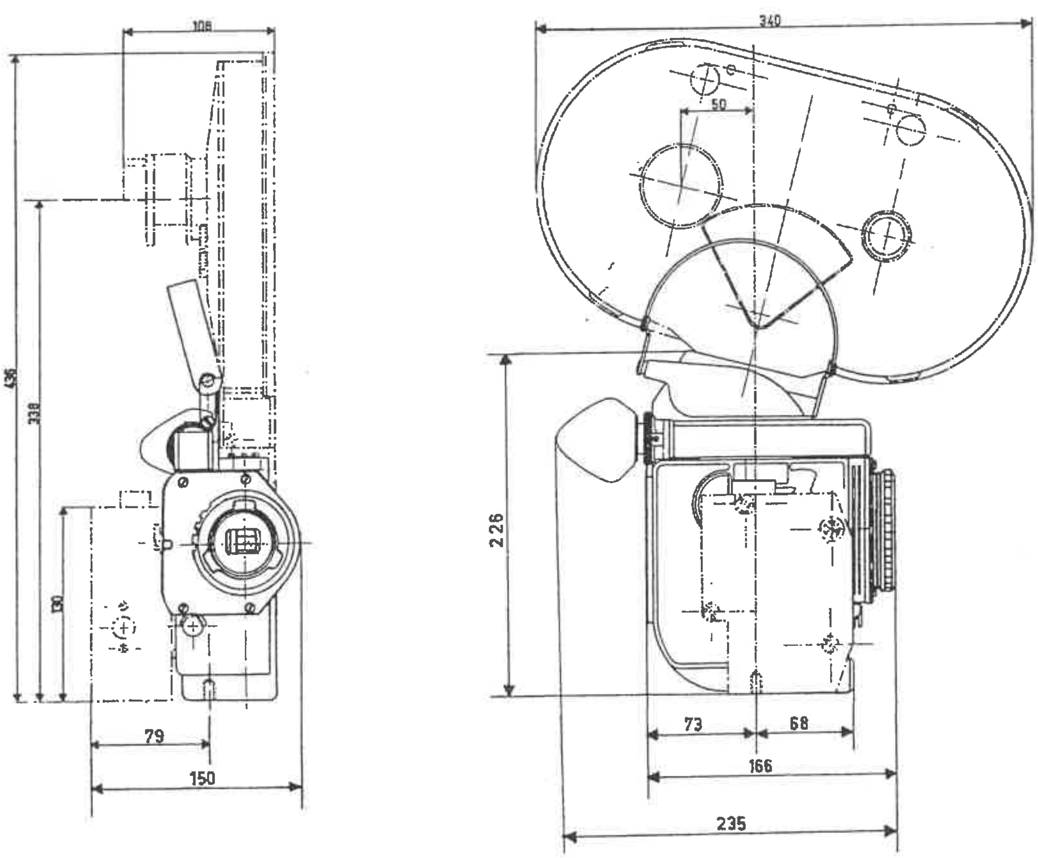
PD	Cotes Masse Dimensions	H16 SB	BOLEX

26,46**



H16SB

26,46**



H16SBM

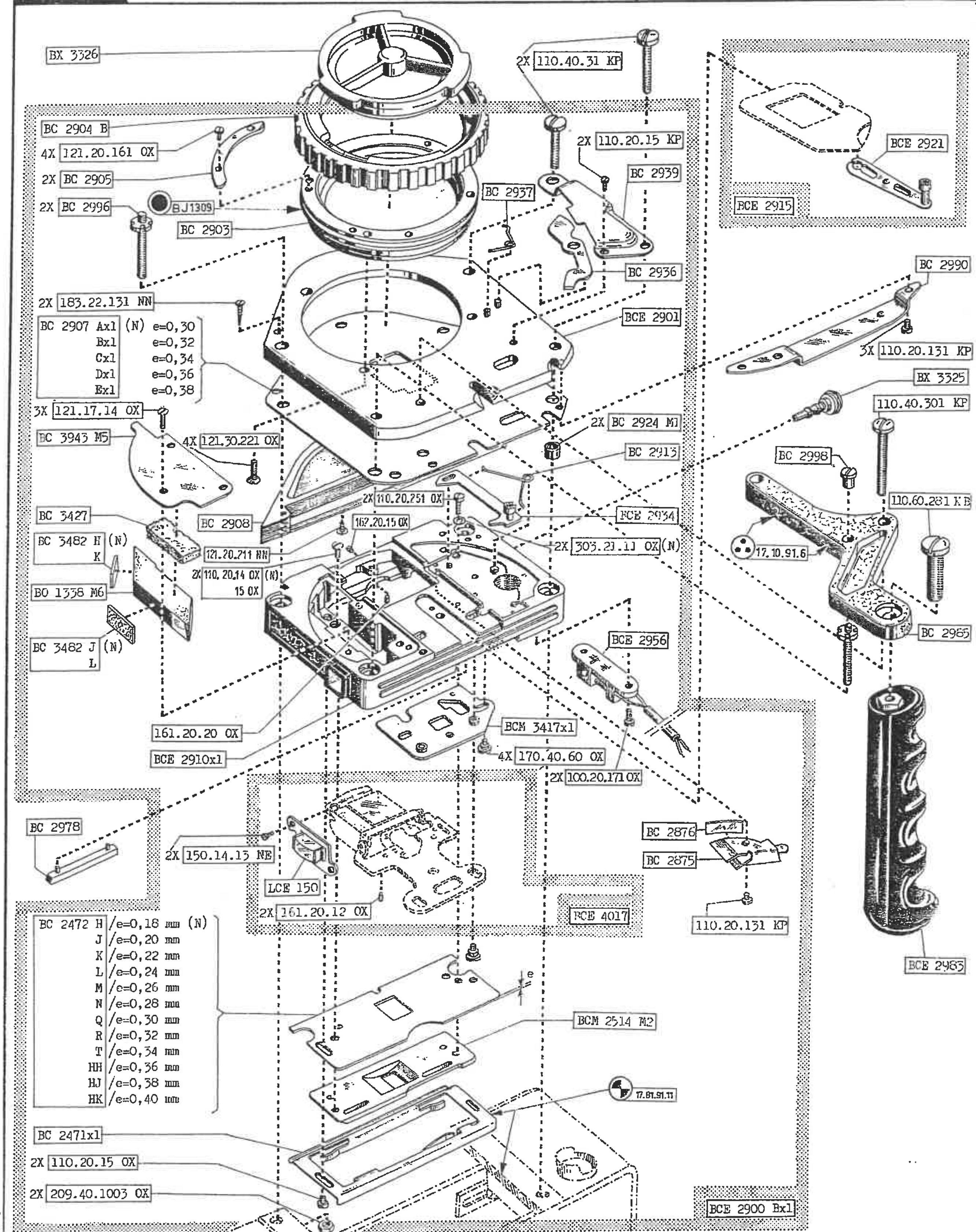
H 3	01.71	*	** Tirage Auflagemass Flange focal distance	L	1

TM Table des matières
Inhaltsverzeichnis
Index

BOLEX

H16EBM 300 401

PD	Porte-objectif Objektivhalter Lens Holder	H16EBM 300 401 →	BOLEX



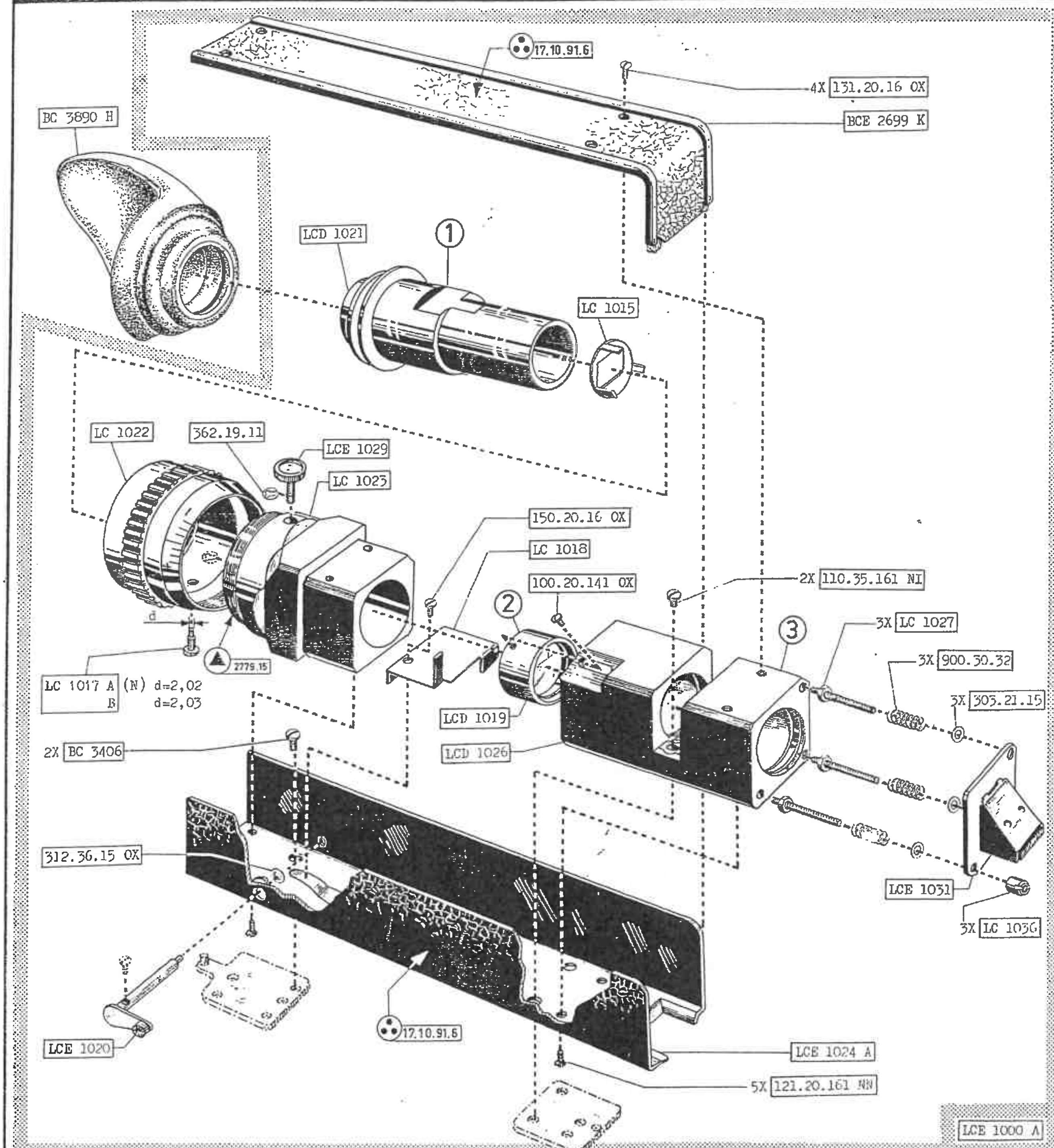
H 3 EBM	06.71	*		A	1

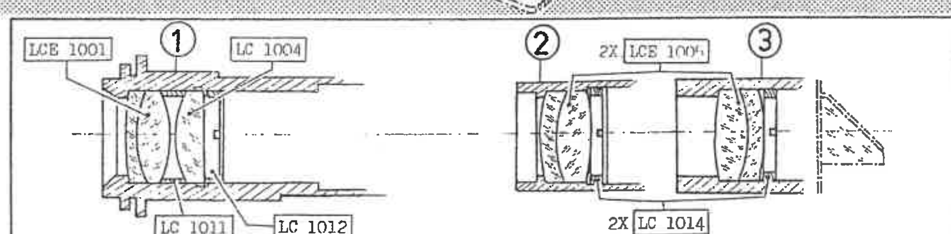
FM	Porte-objectif Objektivhalter Lens holder	H16 EBM 300 401 →	BOLEX

	Anciennes pièces Alte Teile Former parts	Nouvelles pièces Neue Teile New parts	Observations Bemerkungen Remarks
1	(BC 2907 Axl †) (Bxl †) (Cxl †)	BC 2907 F (N) e=0,44 G e=0,46 H e=0,48	F) Nouvelles variantes de caches et suppression de 3 variantes. D) Einführung von neuen Gleitfiltern und Wegfall von 3 Ausführungen. E) Introduction of new filter holders and suppression of 3 versions. 11.71
2	(BCE 2956 †) 2X (100.20.174 0X †)	BCE 2956 M4 2X 120.20.161 NI	F) Fixation du support claquette modifiée, pour éviter un court-circuit avec les contacts. Vis à tête conique remplace vis à tête plate. D) Aenderung in der Befestigung des Startmarkierungshalters zur Vermeidung eines Kurzschlusses mit den Kontakten. Die Flachkopfschraube wird durch eine Zylinderschraube ersetzt. E) Modification of the clapper support fixing to avoid a short-circuit with the contacts. The flat head screw is replaced by another one with cylinder head. 11.71

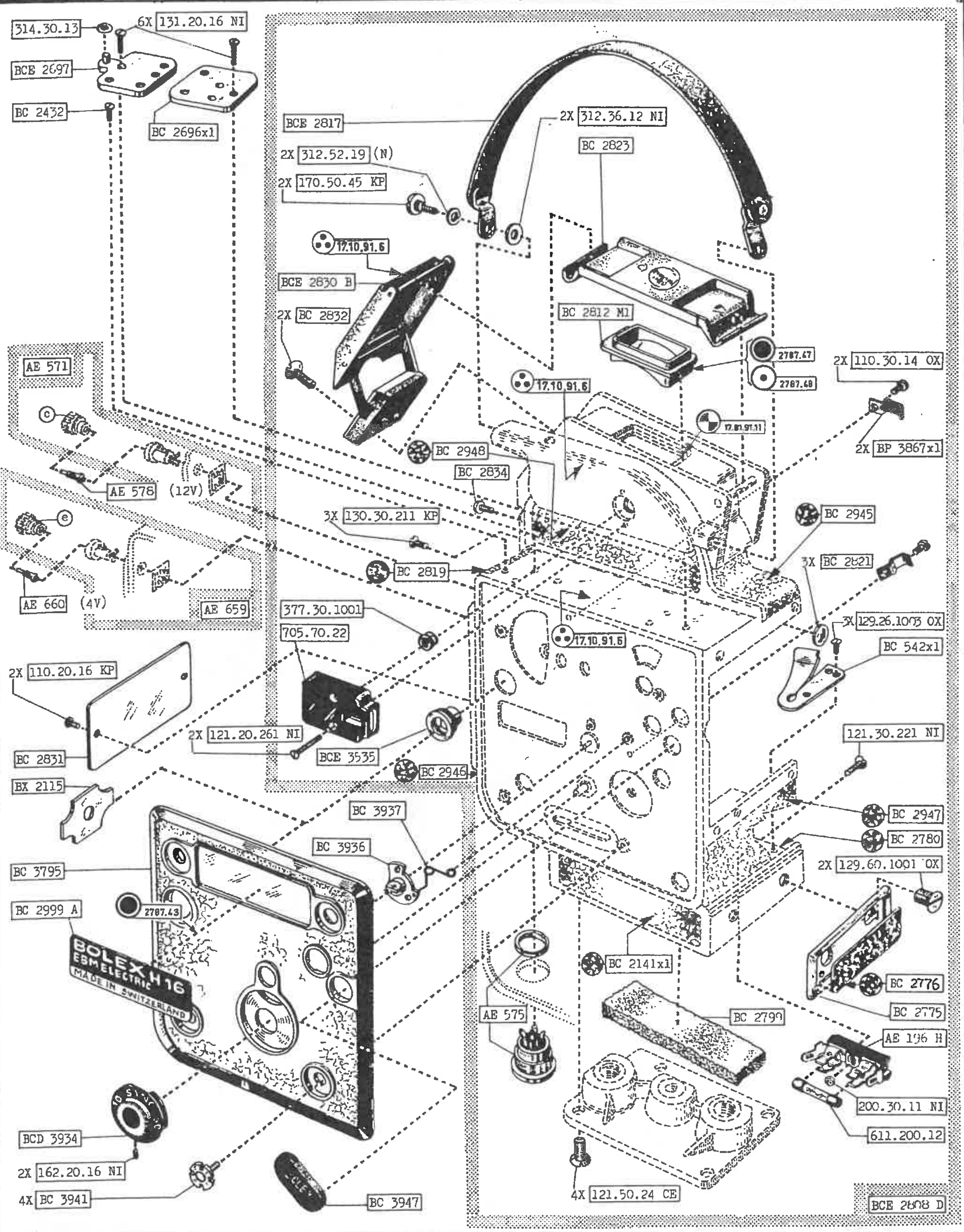
H3 EBM	11.71	*	PD - A - 1 - 06.71	1

PD	Viseur reflexe Reflex-Sucher Reflex-Viewfinder	H16EBM 300 401 ⟹	BOLEX





PD	Boîtier Kameragehäuse Camera body	H16EBM 300 401 ⟹	BOLEX



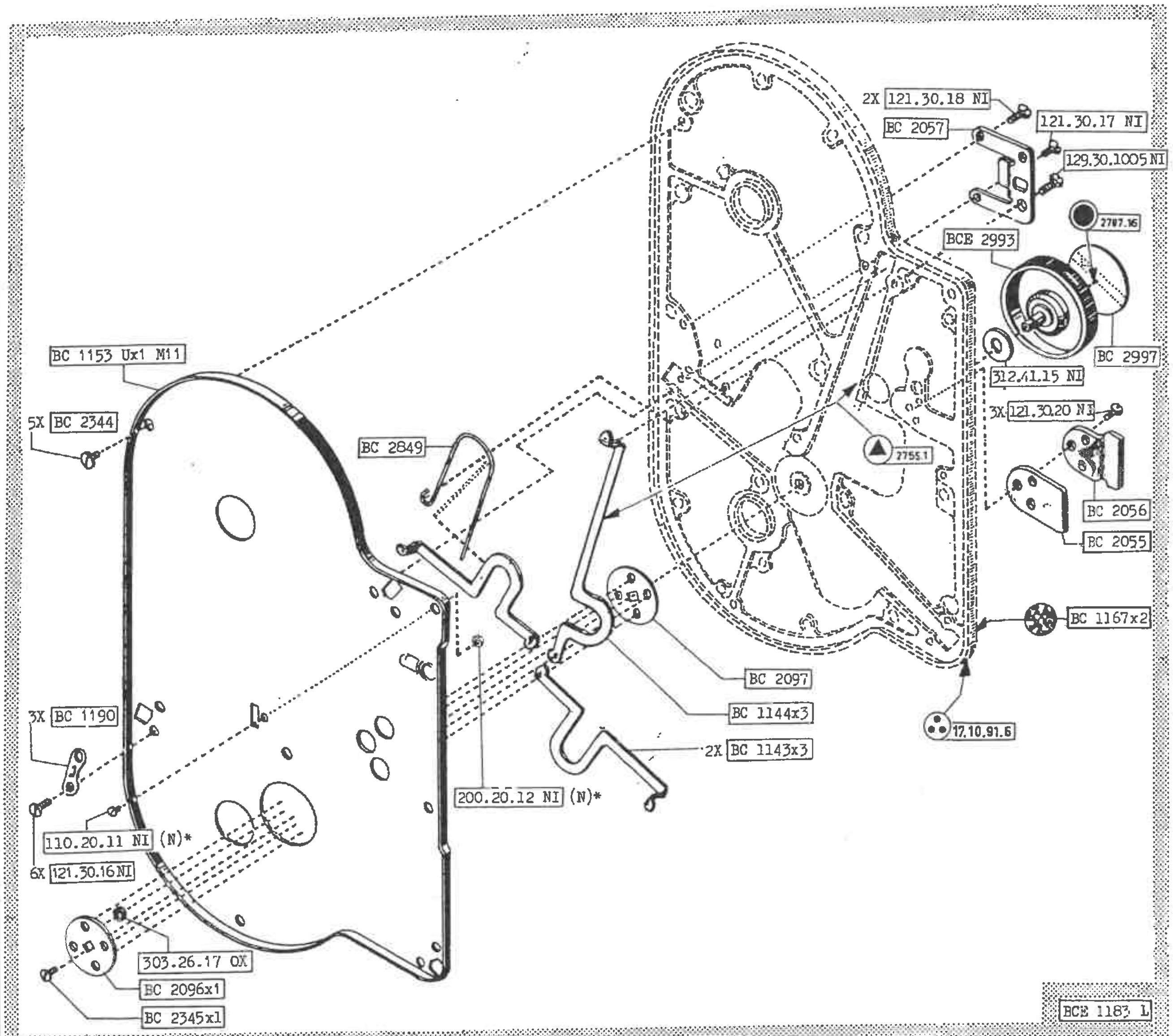
H3 EBM	06.71	*	(F) Gaînages (D) Belederung (E) Leathering	2787.47 2787.48	C	1

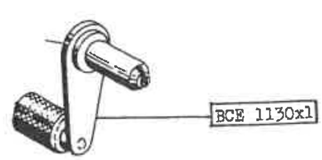
PD Couvercle - Manivelle / Deckel - Aufzugskurbel / Lid - Rewinding handle

H16EBM

300 401 ⟹

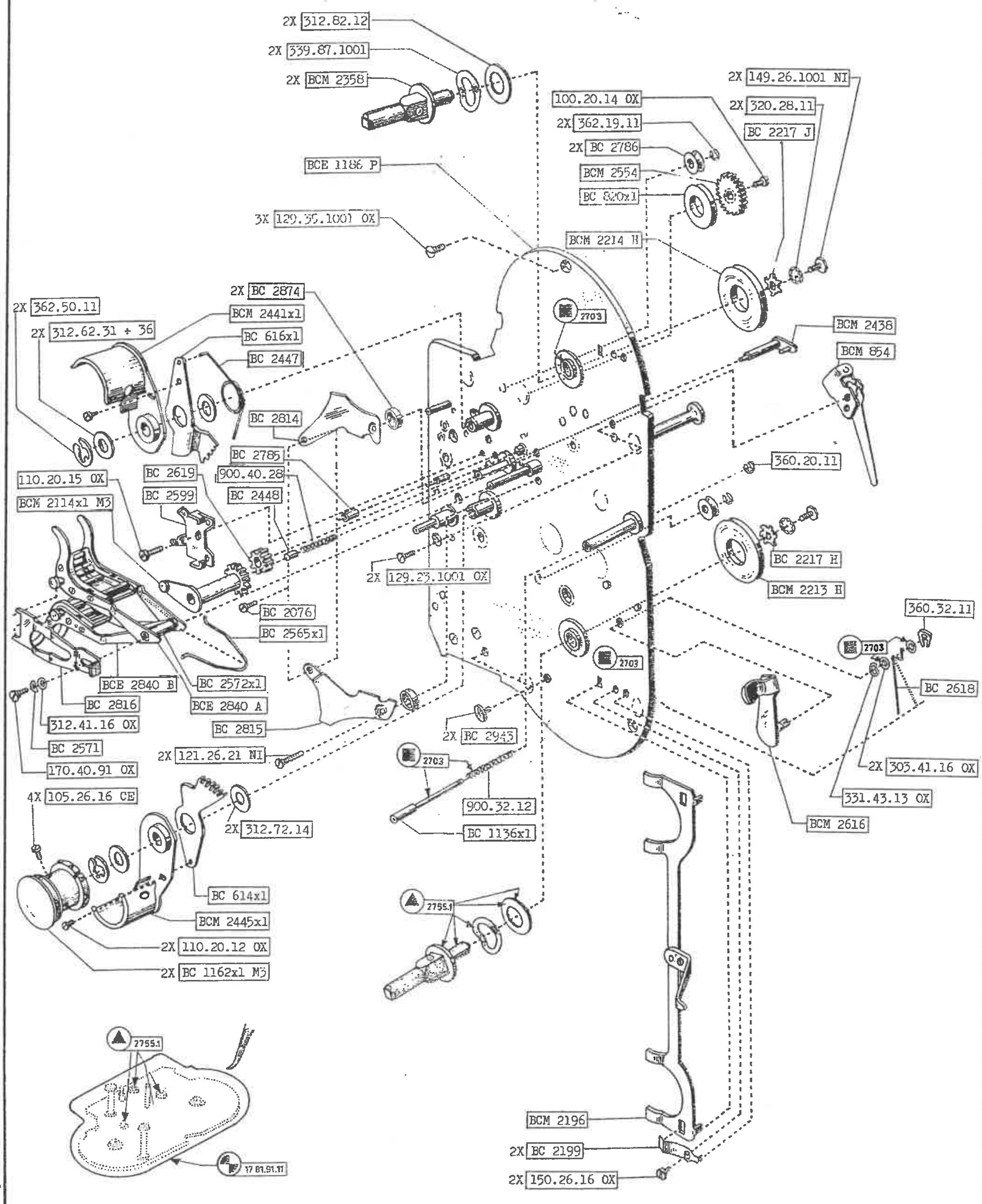
BOLEX



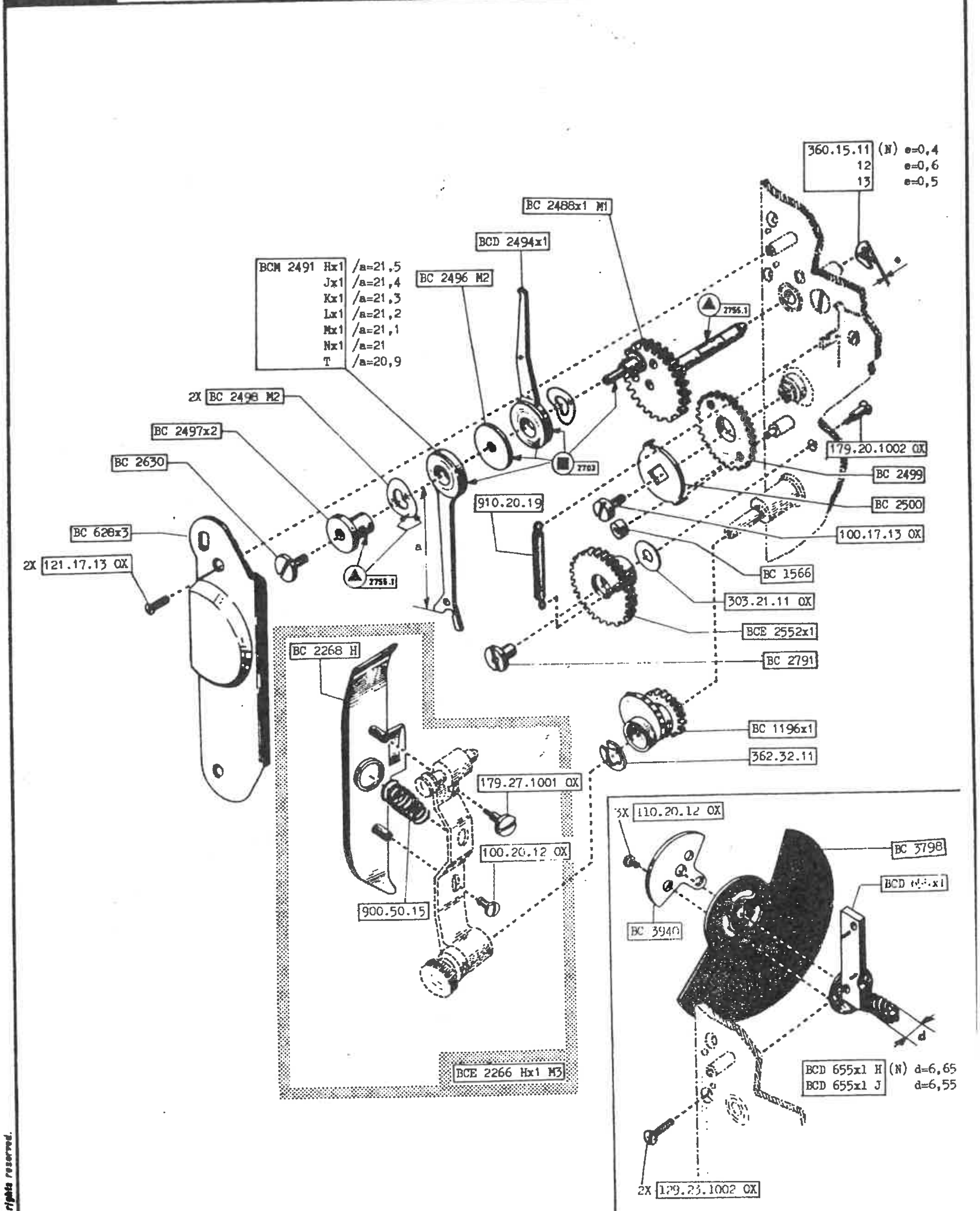


H3 EBM | 06.71 | * | (F) Gaînages (D) Belederung (E) Leathering | 2787.47 2787.48 | D | 1

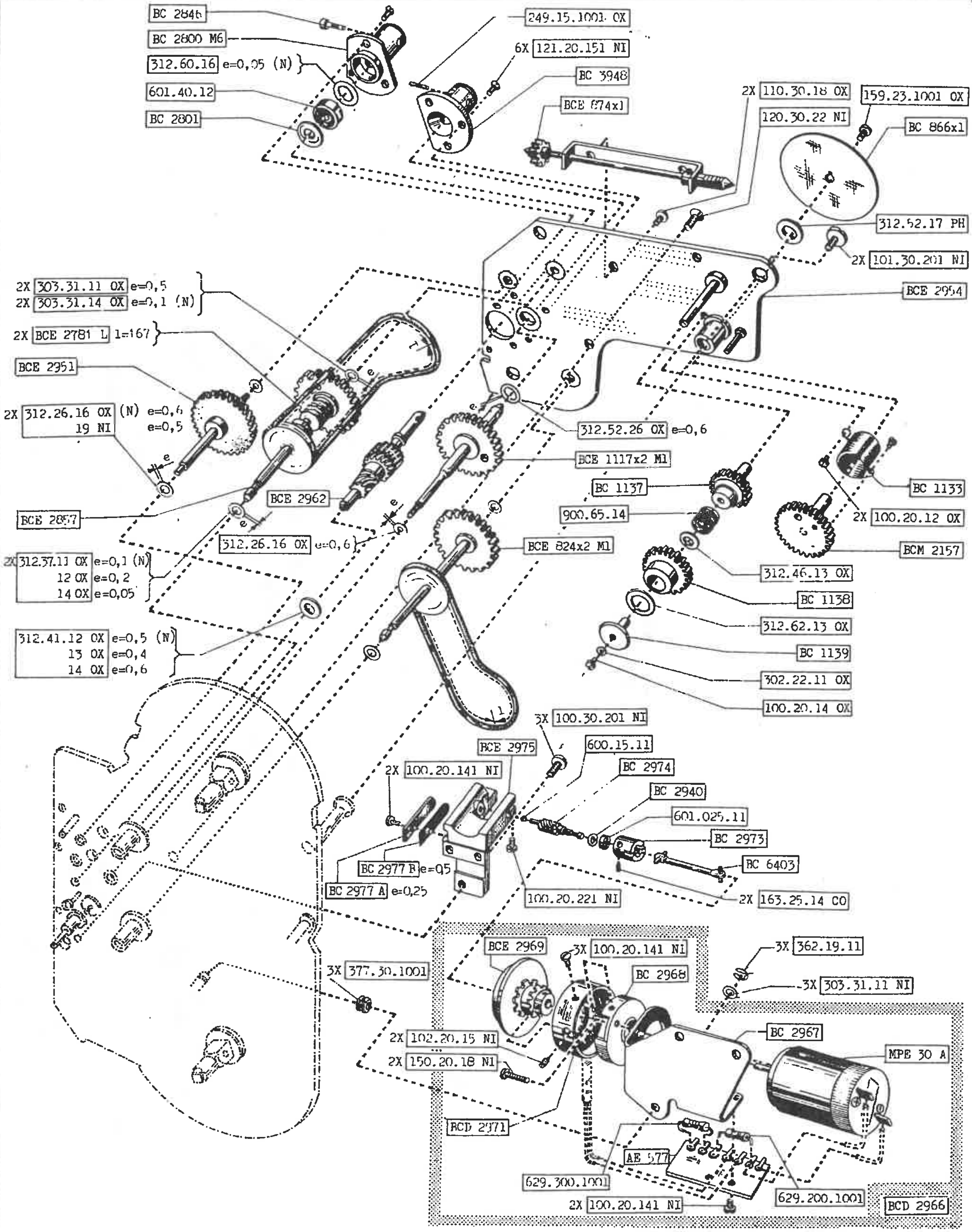
PD	Platine supérieure Obere Werkplatte Upper base plate	H16EBM 300 401	BOLEX



PD	Griffe / Greifer / Claw	Volet presseur / Filmandruckplatte / Pressure pad	H16EBM / 300 401 ⟹	BOLEX

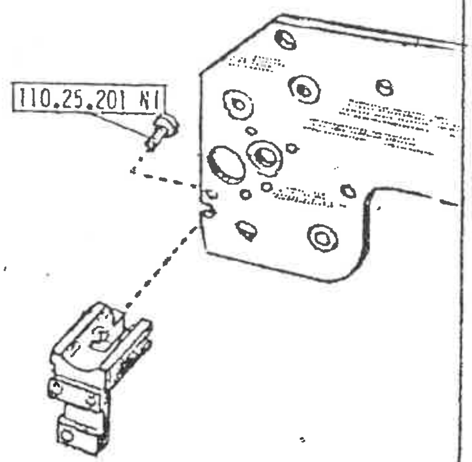
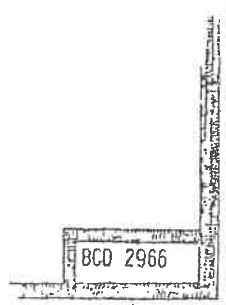
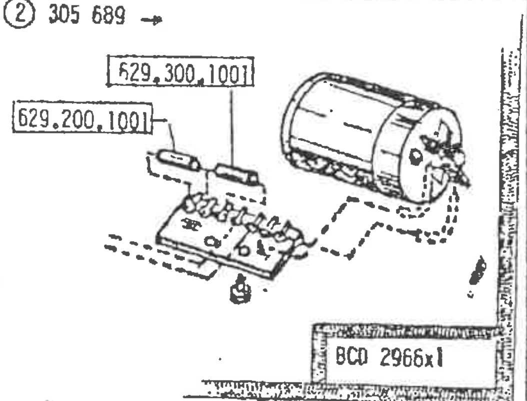


PD	Mécanisme - Moteur Mechanismus - Motor Mechanism - Motor	H16EBM 300 401 ⟹	BOLEX



H3 EBM	06.71	*	(F) Tous les engrenages et pivots sont graissés avec (D) Fetten aller Zahnräder und Stifte mit (E) Grease all gears and pins with 2755 1	G	1

FM	Mécanisme – Moteur Mechanismus – Motor Mechanism = Motor	H16EBM	BOLEX

	Anciennes pièces Alte Teile Former parts	Nouvelles pièces Neue Teile New parts	Observations Bemerkungen Remarks
1			F) Indication du symbole manquant. D) Nachtrag der fehlenden Teilnummer. E) Indication of missing part number. 07.72
2	(312.52.17 PH†) e=0,5 2X (303.31.11 OX†) e=0,5 2X (102.20.15 NI†)	312.52.31 PH e=0,6 2X 303.31.20 OX e=0,4 2X 102.20.131 PH	F) Nomenclature modifiée. D) Teilnummernänderung. E) Part-number modification. 07.72
3	① → 305 688 	② 305 689 → 	F) Modification de la plaquette, suite à l'introduction du freinage par court-circuit d'induit. D) Aenderung der Platte infolge der Einführung der Ankerkurzschlussbremsung. E) Modification of connecting plate following the introduction of braking by short-circuiting armature. 07.72
4	(629.200.1001 †) 20 Ω (629.300.1001 †) 30 Ω	625.200.12 22 Ω 625.270.12 27 Ω	F) Valeur des résistances et symboles modifiée. D) Wert der Widerstände und Teilnummer geändert. E) Value of the resistances and part number modified. 01.74

Mechanism and optical part - General

Considering that the film transport mechanism and the optical system are absolutely similar as for cameras with spring motor, please refer to the instructions already available regarding mounting and adjustments.

Specifications of the electric cameras

1. Driving shaft (fig.1)
   Adjust the axial play to the minimum by positioning bearing (a), tighten screw (b), whereas the ball must rest against stop plates (c).
   The play between pinions (d) and (e) must be reduced to the minimum with a view lessening the noise of the mechanism.
   Unhook the belts of the spool axle pulleys to check the free movement of the mechanism by means of the rewinding handcrank on shaft 8:1.
2. Electric motor (fig.2)
   On mounting the supporting square plate and the pulse generator, the rotor is positioned at a distance of 1 mm.
   Check the function of the motor before mounting.
   Power supply 12 V=.
3. Claw
   To align the claw shaft etc., position the mechanism with tool BJ 1319 (fig.3)
4. Shutter (fig.3)
   Set the bearing on to upper working plate and reduce the play of the pinions to the minimum.
   Position the mechanism with tool BJ 1319. Set the shutter with its edge opposite the mark of the tool and rectify the play in the gears as per arrow.
5. Mounting the mechanism into the housing
   Check and arrange the cables in the housing, especially in the upper section, as little space is available between the extremity of the plate.
   Solder the cables on to the clamps of the motor bow as per wiring diagram L1.
   Check the electric function, power supply 12 V= (for instance T3A) on plug 7P.
   While dismantling the mechanism, do not unsolder the cables from the bow clamps but cut them, so as to protect the insulation. The cables may be taken apart 4 times; afterwards the length is no longer sufficient.
6. Mounting the lens holder on to the housing
   Use special key BJ 1316 to tighten the thraded axles/grip supports.

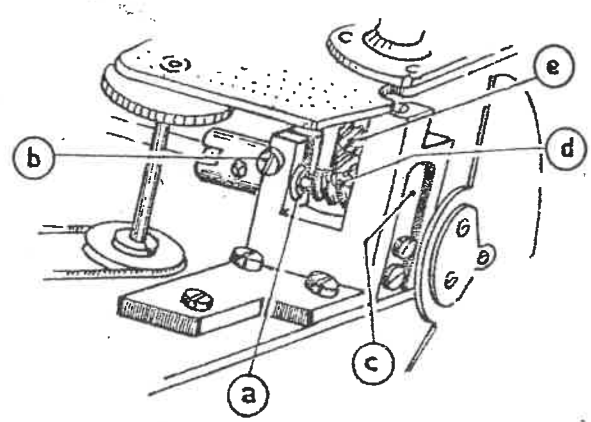


Fig.1

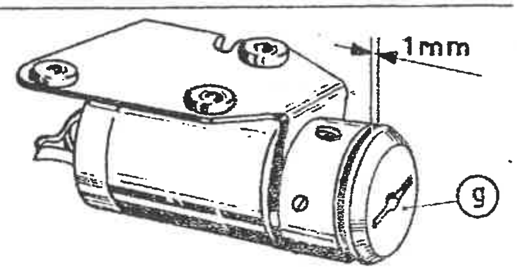


Fig.2

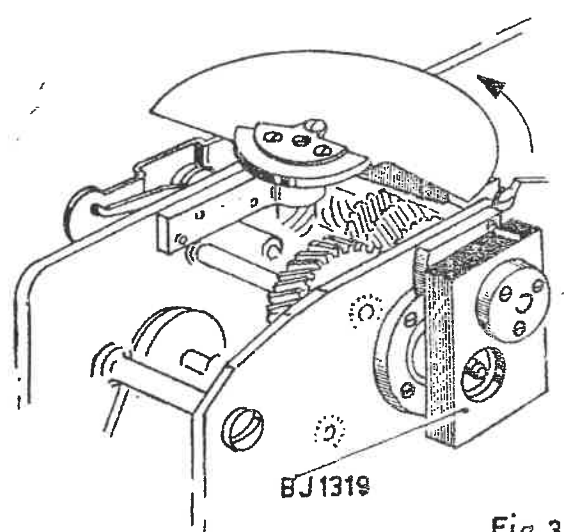


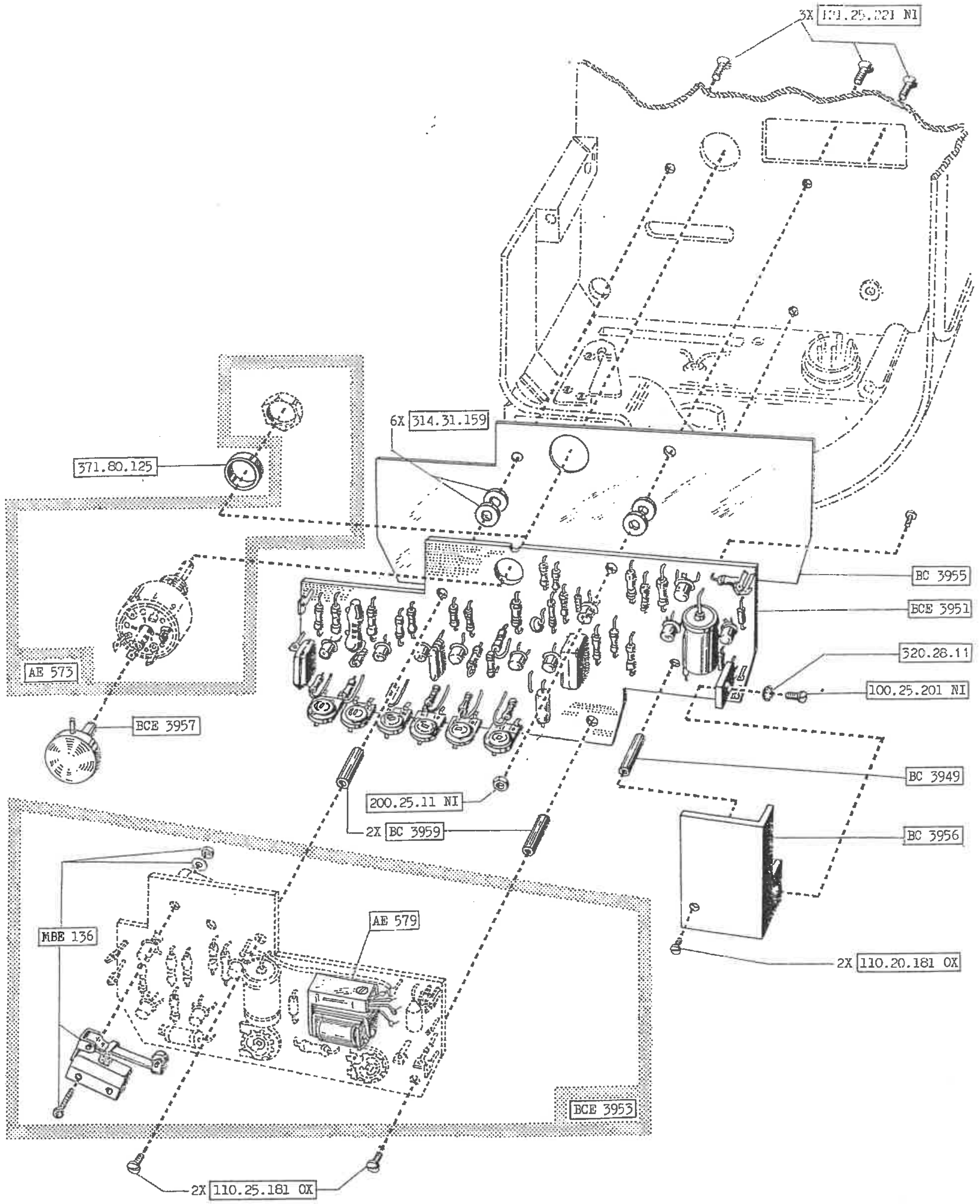
Fig.3

PD Circuits électroniques
Elektronische Schaltungen
Electronic circuits

H16EBM

300 401 ⟹

BOLEX



Mechanism and optical part - General

Considering that the film transport mechanism and the optical system are absolutely similar as for cameras with spring motor, please refer to the instructions already available regarding mounting and adjustments.

Specifications of the electric cameras

1. Driving shaft (fig.1)
   Adjust the axial play to the minimum by positioning bearing (a), tighten screw (b), whereas the ball must rest against stop plates (c).
   The play between pinions (d) and (e) must be reduced to the minimum with a view lessening the noise of the mechanism.
   Unhook the belts of the spool axle pulleys to check the free movement of the mechanism by means of the rewinding handcrank on shaft 8:1.
2. Electric motor (fig.2)
   On mounting the supporting square plate and the pulse generator, the rotor is positioned at a distance of 1 mm.
   Check the function of the motor before mounting.
   Power supply 12 V=.
3. Claw
   To align the claw shaft etc., position the mechanism with tool BJ 1319 (fig.3)
4. Shutter (fig.3)
   Set the bearing on to upper working plate and reduce the play of the pinions to the minimum.
   Position the mechanism with tool BJ 1319. Set the shutter with its edge opposite the mark of the tool and rectify the play in the gears as per arrow.
5. Mounting the mechanism into the housing
   Check and arrange the cables in the housing, especially in the upper section, as little space is available between the extremity of the plate.
   Solder the cables on to the clamps of the motor bow as per wiring diagram L1.
   Check the electric function, power supply 12 V= (for instance T3A) on plug 7P.
   While dismantling the mechanism, do not unsolder the cables from the bow clamps but cut them, so as to protect the insulation. The cables may be taken apart 4 times; afterwards the length is no longer sufficient.
6. Mounting the lens holder on to the housing
   Use special key BJ 1316 to tighten the thraded axles/grip supports.

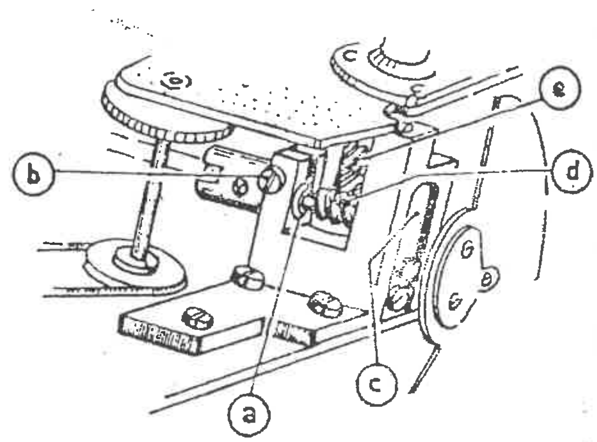


Fig.1

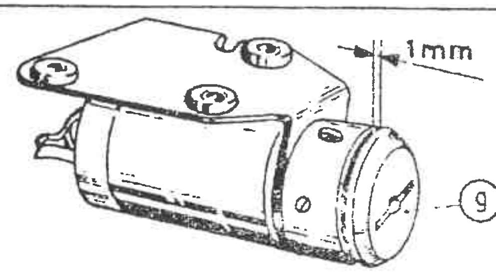


Fig.2

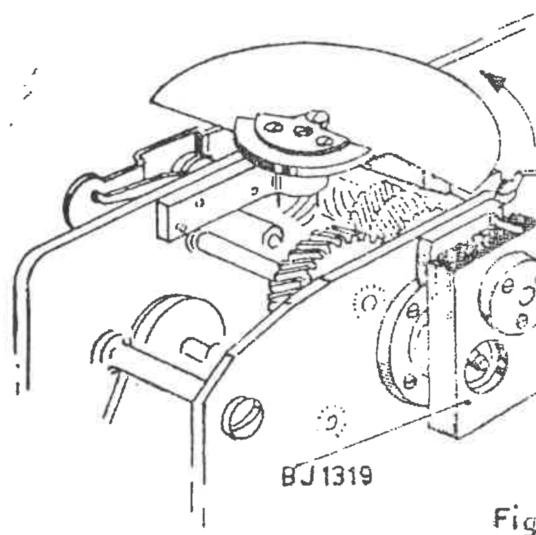


Fig.3

FM	Electronic circuits	H16 EBM 300 401 →	Bolex paillard

	Anciennes pièces Alte Teile Former parts	Nouvelles pièces Neue Teile New parts	Observations Bemerkungen Remarks
1	4. Duration of clapstick ~~Connect terminals 6 (green) and 7 (blue) together~~	4. Duration of clapstick Connect terminals 3 (red) and 7 (blue) together.	E) Misprint 01.72

3. Indicator of discharge

   Red warning lamp on the camera.
   The lamp must switch on when the voltage drops down to:

   | 11 ± 0.1 V |

   Act on potentiometer 7P accessible through the upper working plate (Fig.4)

4. Duration of clapstick

   White lamp on the camera.
   The lamp must switch on at each start of the camera during

   | 300 .... 400 ms |

   Preparation as per Fig. 5
   Speed on 25 f.p.s.
   Camera loaded.
   Oscilloscope adjusted: vertical 5 V/cm
   time base 50 ms/cm
   Oscilloscope connected with connecting box BJ 1320
   to terminals 6 (green) and 4 (black).
   connect terminals 6 (green) and 7 (blue) together.

   Act on potentiometer P8 accessible through the upper working plate (Fig. 4) to descent the curve values from 300 to 400 ms on the escilloscope screen (Fig. 5)

5. Checking the signal of the pulse generator

   Preparation as per Fig. 6
   Speed on 25 f.p.s.
   Camera loaded
   Oscilloscope adjuted: Vertical 1 V/cm
   time base 0.5 ms/cm
   Oscilloscope connected with connecting box BJ 1320
   to terminal 5 (yellow) and
   4 (black)

   The curve must equal Fig. 6a

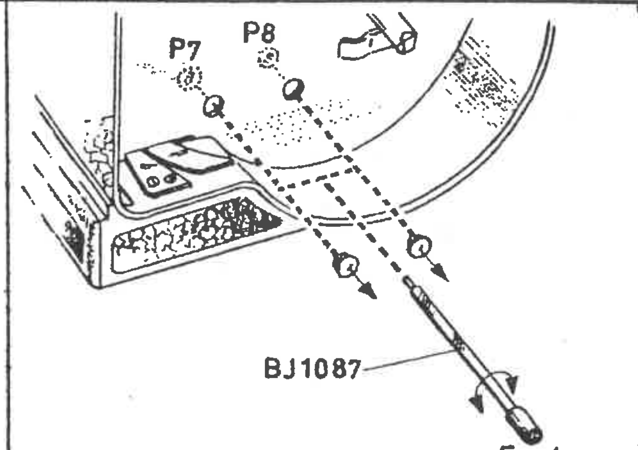


Fig.4

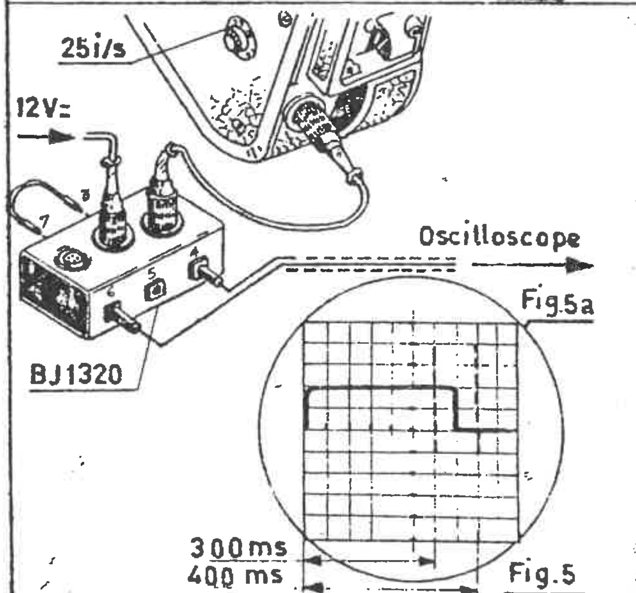


Fig.5

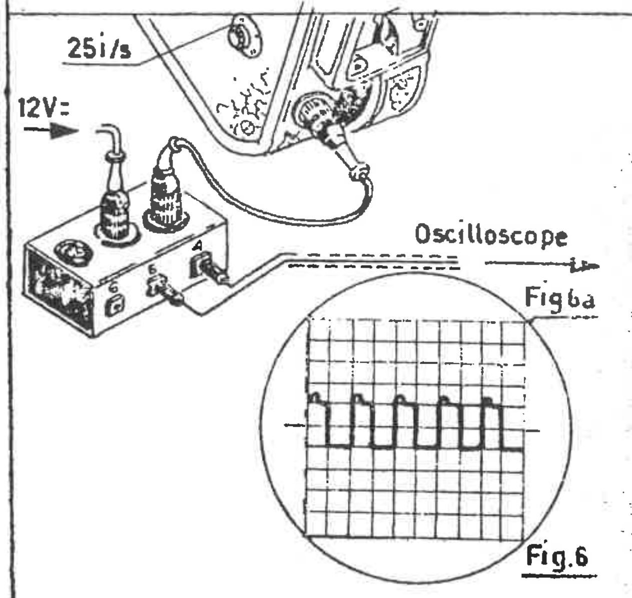
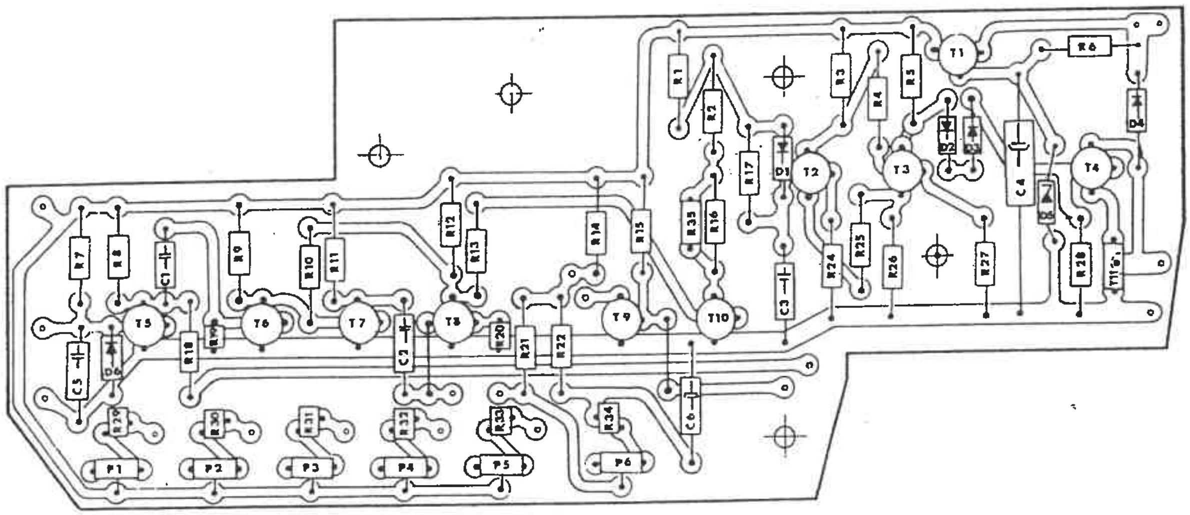
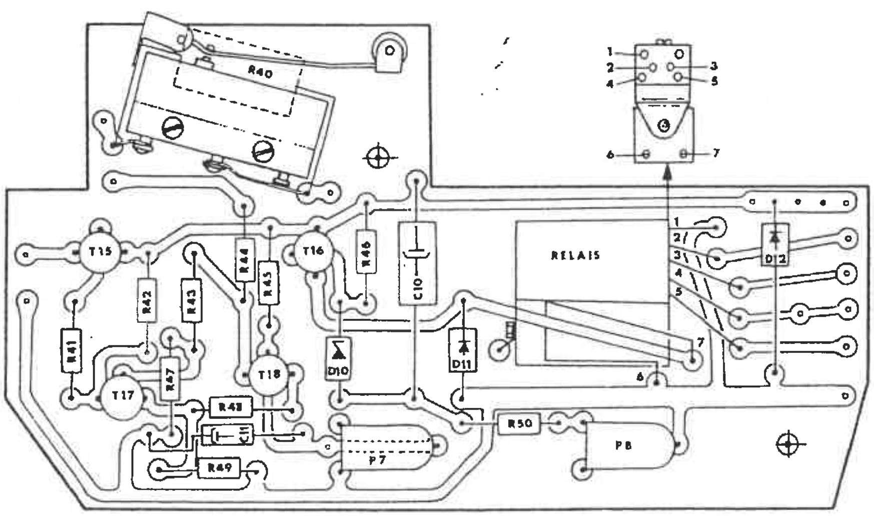


Fig.6

PD	Circuits électroniques Elektronische Schaltungen Electronic circuits	H16EBM 300 401 ⟹	BOLEX





Composants électriques : Résistances
Elektrische Bestandteile : Widerstände
Electrical components : Resistors

Tolérance générale : ± 5 % * ± 10 %
Allgemeine Toleranz :
General tolerance :

Valeur Wert Value [Ω]	Puissance Leistung Power [W]	No. de commande Ersatzteil-Nr. Part-No.	No. Nr. No.
18	5,5	631.180.11 *	R 40
150	0,25	623.151.15	R 49
150	"	639.151.1001	R 35
270	"	623.271.15	R 25-26-50
680	"	623.681.15	R 6
820	"	623.821.15	R 48
1 K	"	623.102.15	R 2-3-5-11-14-28
1,5 K	"	623.151.15	R 46
2,2 K	"	623.222.15	R 23
2,7 K	"	623.272.15	R 27-47
3,3 K	"	623.332.15	R 4
3,9 K	"	623.392.15	R 42-43-44
4,7 K	"	623.472.15	R 9-12-16
5,6 K	"	623.562.15	R 17
6,8 K	"	623.682.15	R 8
8,2 K	"	623.822.15	R 1
15 K	"	623.153.15	R 22-41
22 K	"	623.223.15	R 13-45
27 K	"	623.273.15	R 7-18
33 K	"	623.333.15	R 29
82 K	"	623.823.15 *	R 20
100 K	"	623.104.15	R 19-24-30-31
120 K	"	623.124.15	R 34
150 K	"	623.154.15	R 32
220 K	"	623.224.15	R 10-21
330 K	"	623.334.15	R 15-33
2,2 K	-	681.15.11	P 8
4,7 K	-	681.15.12	P 7
25 K	-	681.18.11	P 1-2-3
50 K	-	681.18.12	P 4-5-6

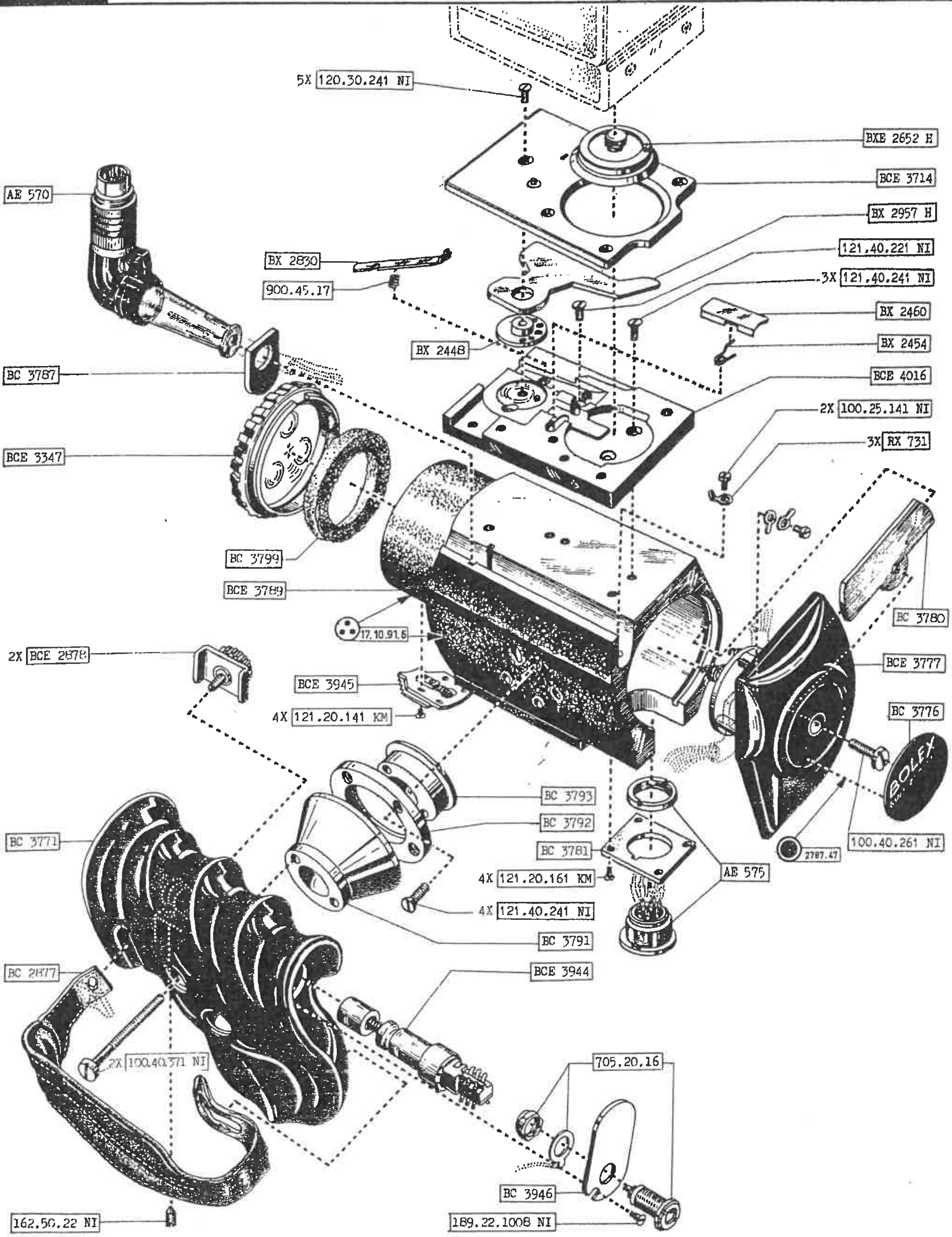
Condensateurs - Kondensatoren - Capacitors

Valeur Wert Value [F]	Tension de service Betriebsspannung Operating voltage [V]	No. de commande Ersatzteil-Nr. Part-No.	No. Nr. No.	Tolérances Toleranzen Tolerances
2,2 n	500	651.222.500	C1	± 20 %
10 n	250	649.103.1001	C2	± 10 %
220 n		648.224.11	C5	
680 n	63	648.684.12	C3	± 20 %
6,8 µ	6	653.685.06	C6	± 20 %
20 µ	16	661.206.016	C11	+50 -10 %
200 µ	10	661.207.010	C4 - 10	+50 -10 %

Diodes/Transistors - Dioden/Transistoren - Diodes/Transistors

Type Typ Type	No. de commande Ersatzteil-Nr. Part-No.	No. Nr. No.
1 N 4148	693.001.106	D 1-2-3-6
1 N 4003	693.002.101	D 4-11
20 A 1	693.002.107	D 12
ZF 6,2	693.003.107	D 10
ZF 6,8	693.003.124	D 5
BC 108 B	693.015.118	T 1-2-3-4-6-7-9-10-17-18
BC 109 B	693.015.108	T 5-8
BC 179 B	693.015.117	T 15-16
2 N 5190	693.016.104	T 11

PD	Poignée Handgriff Grip	H16EBM 300 401 →	BOLEX



H 3 EBM	06.71	*		J	1

Assembling

While dismantling or assembling the container lid (a), remove the rapid attachment to take off the cables and plug 7P.
On assembling, insert fixing plate (b) (Fig.1) between the 3 supporting columns of the spring contacts, screw (c) being only slightly engaged. Align lid (a) so as to allow plate (b) to engage into the slot of the grip housing . Turn the whole assembly to the final position of lid (a) and fix it with screw (c).
CAUTION : The cables must pass freely between the 3 columns under the plate with the 3 spring contacts. Mount plug 7P and the rapid attachment; align excenter (d) (drive pin of the locking lever) correctly, so that the lever ensures a good fixing of the camera when it is in closed position.
Electrical connections, see wiring diagram L1.
Check the electrical supply to the camera via handgrip prior to carrying out the adjustments.

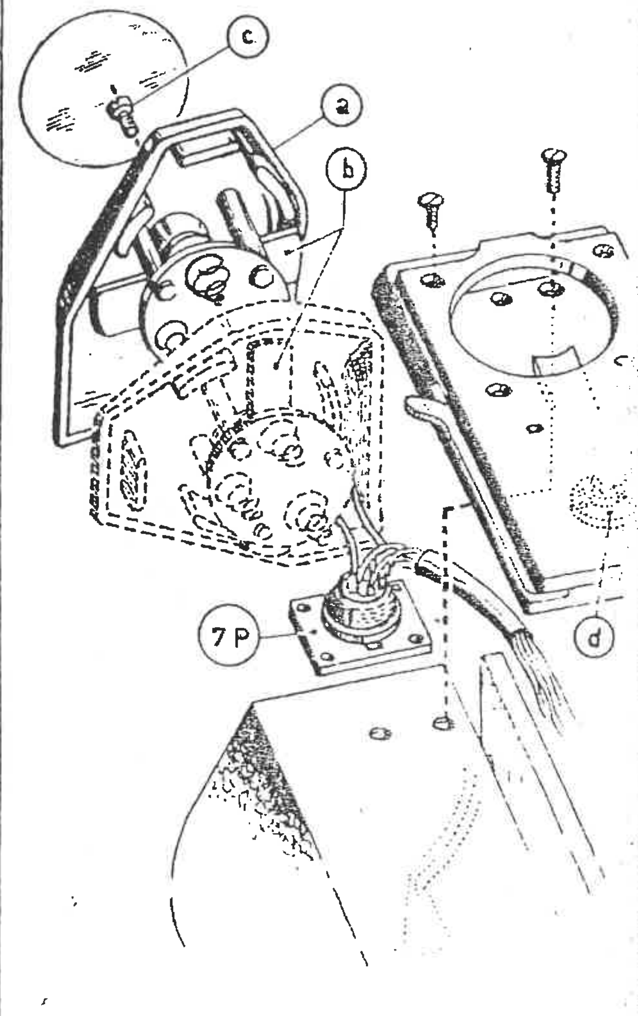


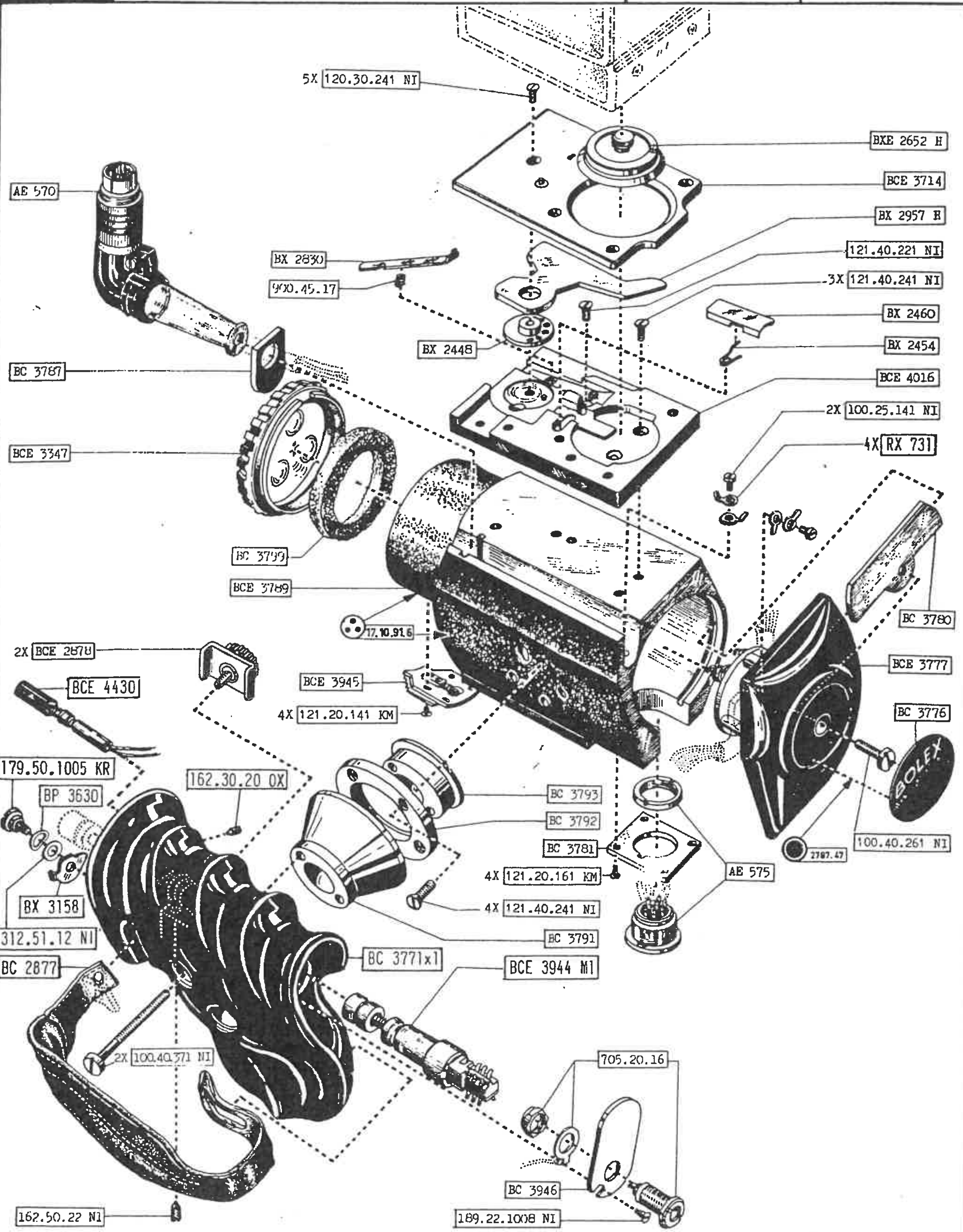
Fig.1

PD Poignée / Handgriff / Grip

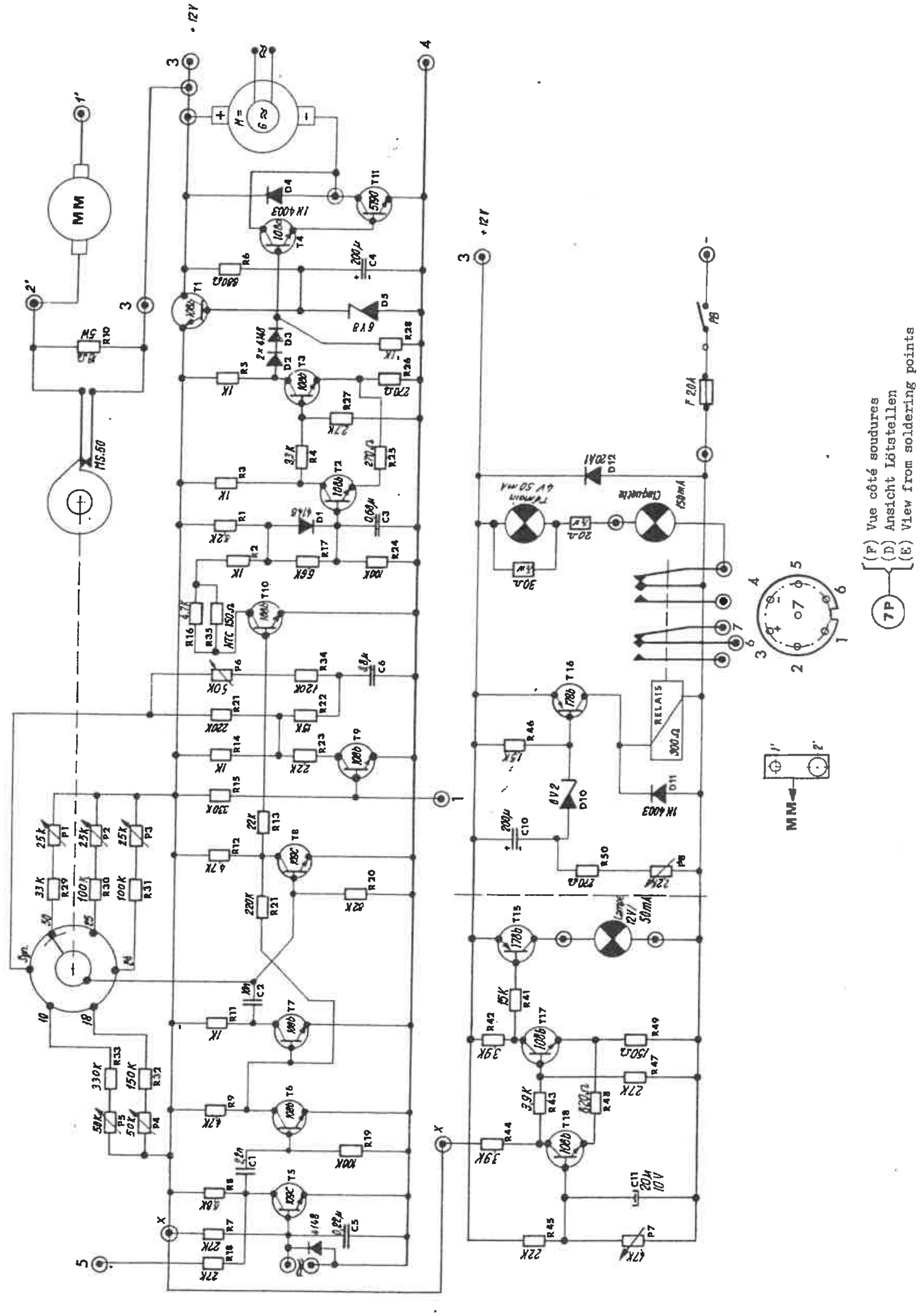
H16EBM

305 689 →

BOLEX



PD	Schéma électrique Elektrisches Schema Electric diagram	H16EBM 300 401 ⟹	BOLEX



H3 EBM	06.71	*		K	1

FM	Schéma électrique Elektrisches Schema Electric diagram	H16 EBM 305 689 →	BOLEX

	Anciennes pièces Alte Teile Former parts	Nouvelles pièces Neue Teile New parts	Observations Bemerkungen Remarks
1	20 Ω 1/2 W 20 Ω 1/2 W	22 Ω 1/2 W 27 Ω 1/2 W	F) Changement de valeur des résistances. D) Aenderung des Widerstandswertes. E) Change of the resistances value. 01.74

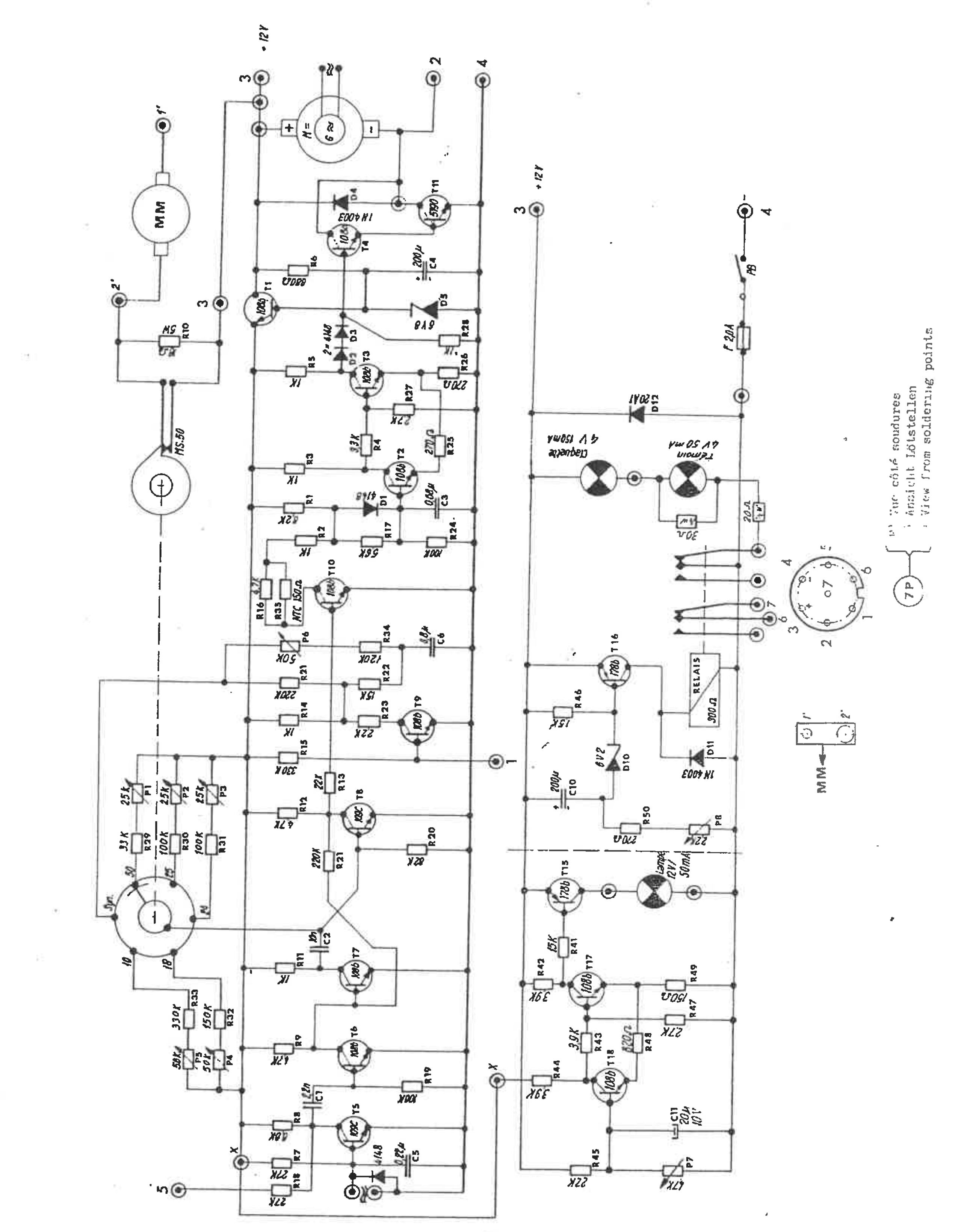
PD

Schéma électrique
Elektrisches Schema
Electric diagram

H16EBM

305 689 ⇨

BOLEX



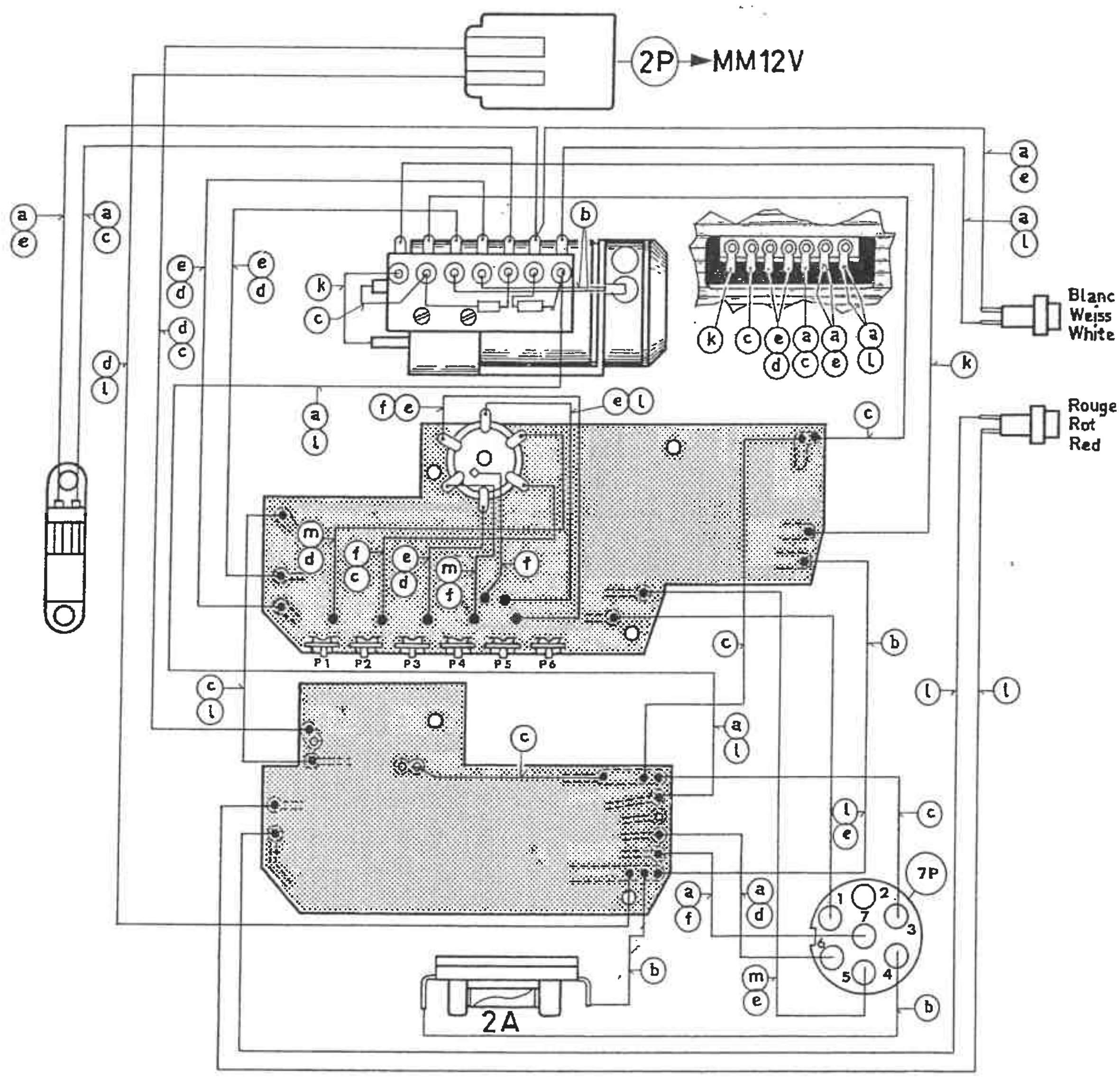
H3 EBM

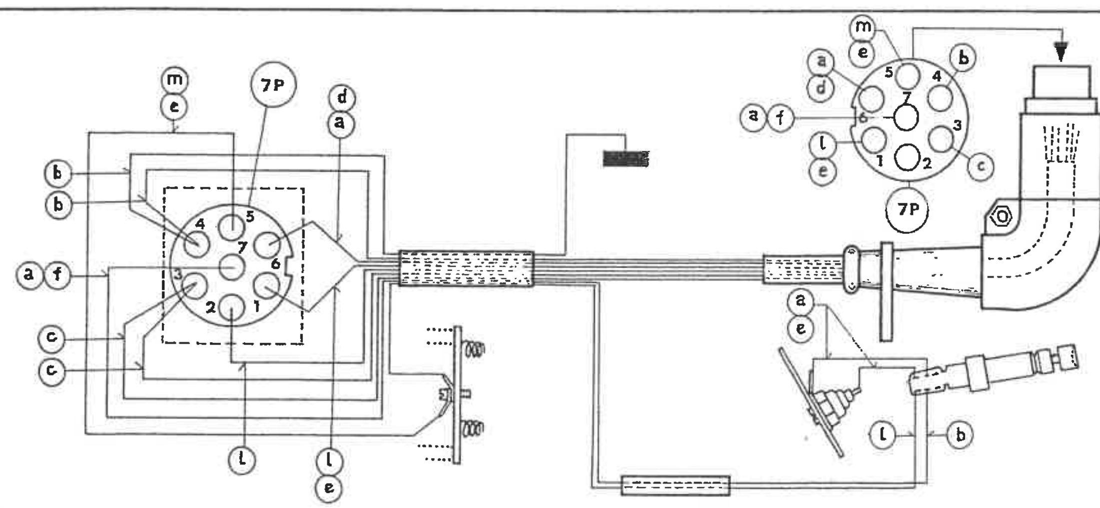
06.72

*

K 1.1

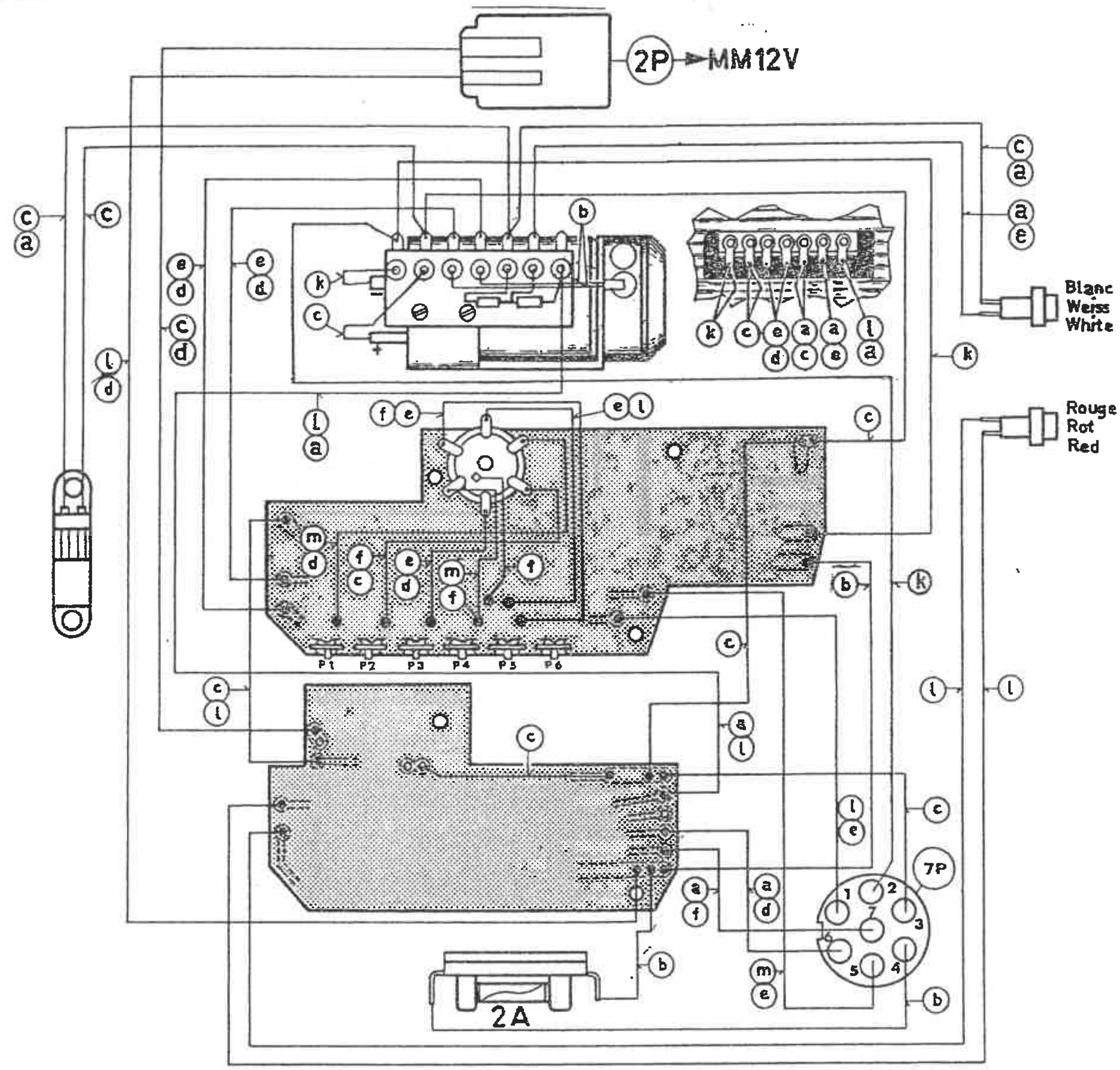
PD	Plan de câblage Verdrahtungsschema Wiring Diagram	H16EBM 300 401 ⟹	BOLEX

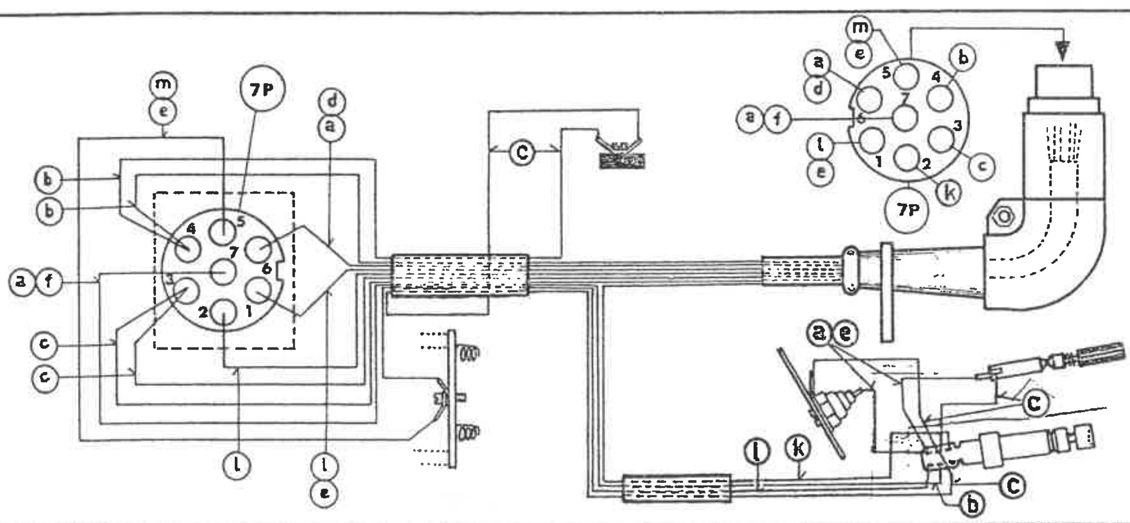




H 3 EBM	06.71	*	7P — (F) Vue côté soudures (D) Ansicht Lötstellen (E) View from soldering points	L	1

PD	Plan de câblage Verdrahtungsschema Wiring Diagram	H16EBM 305 689 ⟹	BOLEX

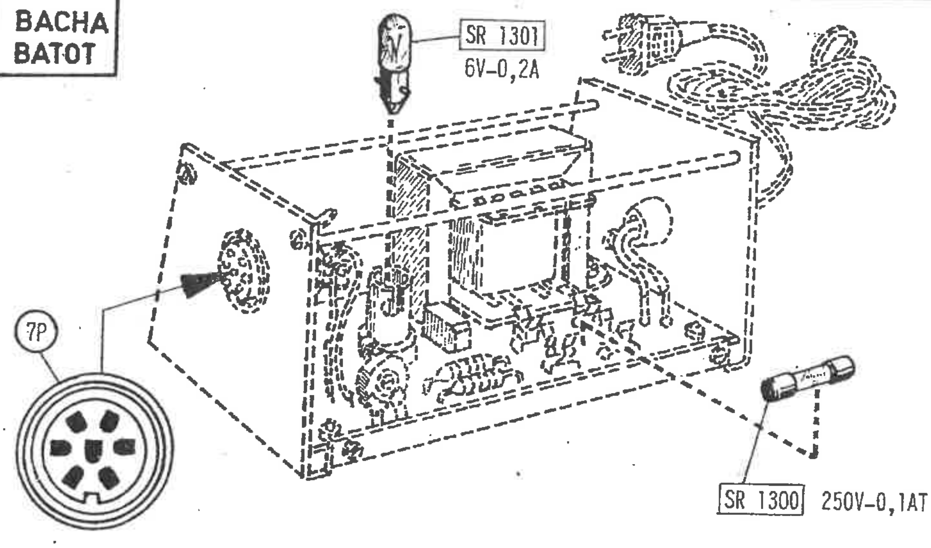


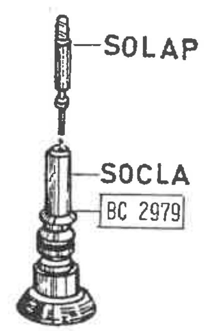


H 3 EBM	06.72	*	7P — F: Vue côté soudures D: Ansicht Lötstellen E: View from soldering points	L	1.1

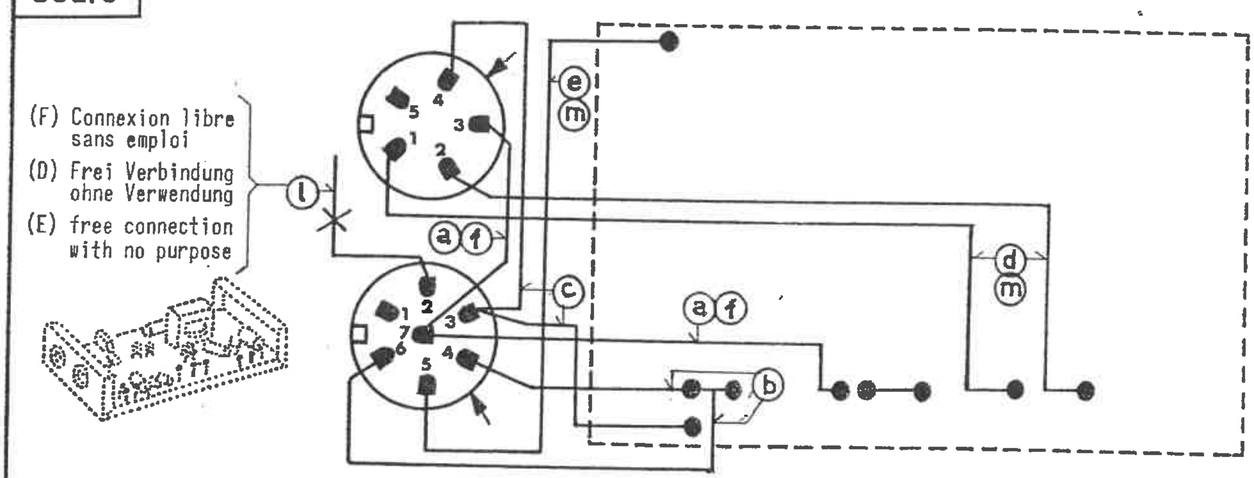
PD	Accessoires Zubehör Accessories	H16EBM 300 401 ⟹	BOLEX

BACHA
BATOT

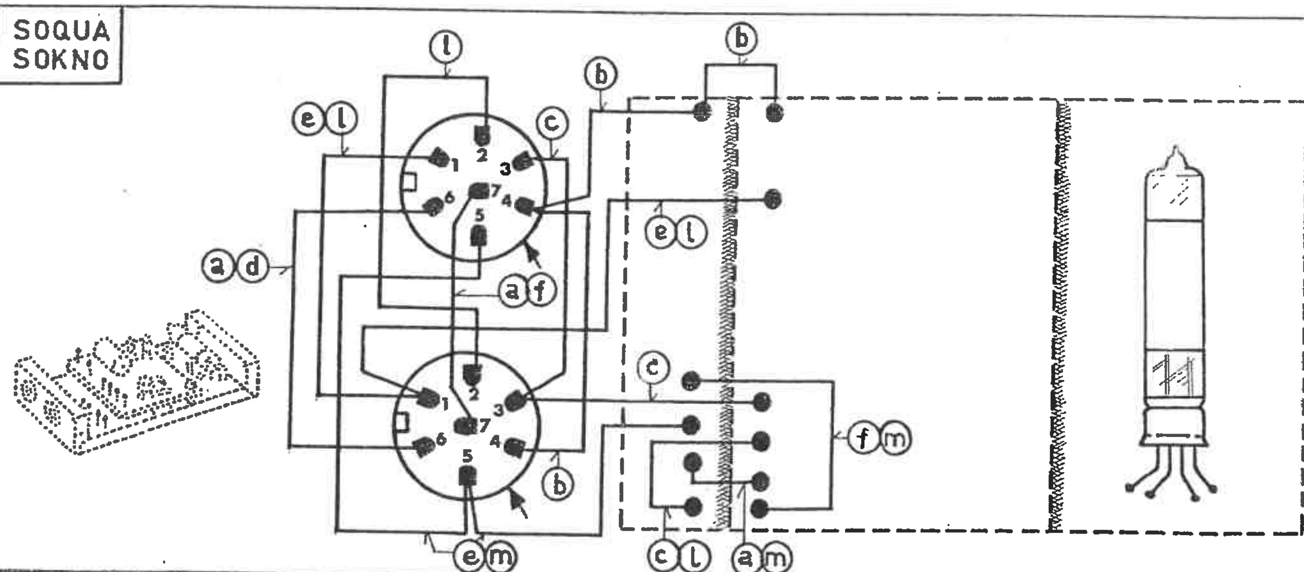




SOLOT
SOLTO

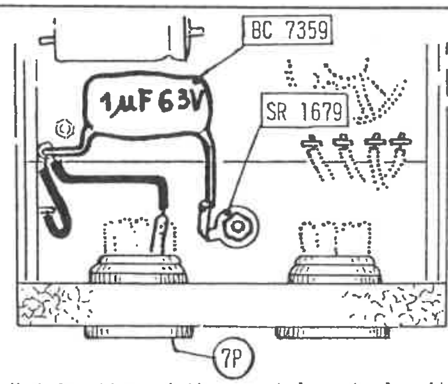


SOQUA
SOKNO

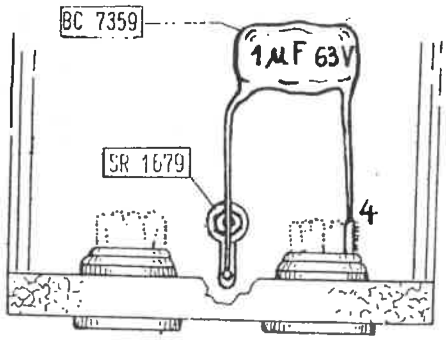
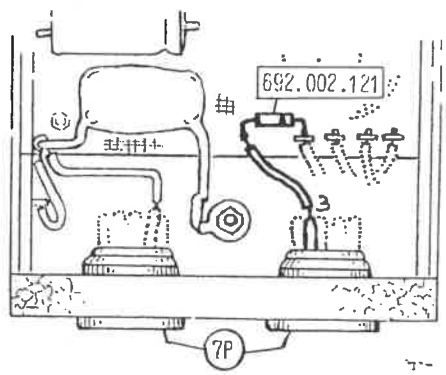
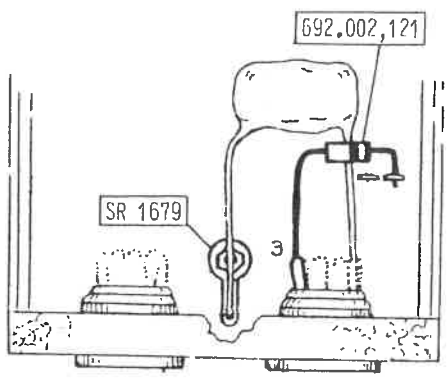


H 3 EBM	12.71	*	(F) Vue côté soudures (D) Ansicht lötstellen (E) View from soldering points	M	1

FM	Accessoires Zubehör Accessories	H16 EBM	BOLEX

	Anciennes pièces Alte Teile Former parts	Nouvelles pièces Neue Teile New parts	Observations Bemerkungen Remarks
1		BFY-51 693.015.115 + → SOLOT / SOLTO → SR 1322 → SOQUA / SOKNO → SR 1323	F) Sur les équipements son pilote et synchro-quartz, l'échauffement exagéré du transistor BFY-51 peut les endommager. Pour limiter cet échauffement, il a été introduit sur les séries récentes un radiateur à ailettes: SR 1322 pour les équipements son pilote SR 1323 " " " synchro-quartz. Il est recommandé d'ajouter ce radiateur sur les anciens équipements son pilote et synchro-quartz. D) Zur Verminderung der übermässingen Erhitzung des Transistors BFY-51 wurde ein Rippenkühlkörper SR 1322 in die Pilottonausrüstungen SR 1323 in die Synchro-Quarz-Ausrüstungen der letzten Ausführung eingebaut. Aeltere Ausführungen müssten dementsprechend verbessert werden. E) Introduction of a ribbed cooler. SR 1322 into sync pulse generator SR 1323 into synchro-quarz to reduce the excessive heating of transistor BFY-51. Older equipments should also be improved accordingly 09.72
2		 E) Modification of the crystal control units, in order to make them less sensitive to exterior interferences when used with camera H16 EL. Addition of a 1 µF capacitor in the 7 pin plug of the crystal control unit between point 4 and earth on a flat clamp to be fastened as per sketch. Remove the varnish under the nut which maintains the 7 pin plug. Consult H4-FM2-PD-5 Use the <u>shielded</u> connection cable SOCCU.	F) Modification des équipements synchro-quartz pour les rendre moins sensibles aux parasites extérieurs lors de leur utilisation avec la caméra EL Adjonction d'un condensateur de 1 µF sur la prise 7P de l'équipement synchro-quartz entre le point 4 et la masse sur une cosse plate fixée au point indiqué sur le dessin. Enlever le vernis sous l'écrou fixant la prise 7P. Consulter: H4 - FM2 - PD-5. Utiliser un câble de liaison SOCCU <u>blindé</u>. D) Aenderung der Synchroquarz-Ausrüstungen, um sie bei der Verwendung mit der Kamera H16EL gegen die wirkung von Aussenstörungen weniger empfindlich zu machen. Zusatz eines Kondensators von 1 µF in der 7 poligen Buchse der Synchroquarz-Ausrüstung zwischen Punkt 4 und der Masse auf einer flachen Klemme, die laut Zeichnung befestigt wird. Den Lack unter der Befestigungsniete der 7 poligen Buchse entfernen. Siehe: H4-FM2-PD-5. Ergänzend wird auch das <u>abgeschirmte</u> Verbindungskabel SOCCU verwendet 07.76

FM	Accessoires Zubehör Accessories	H16 EBM 300 401 ⟶	BOLEX

	Anciennes pièces Alte Teile Former parts	Nouvelles pièces Neue Teile New parts	Observations Bemerkungen Remarks
3			F) Introduction du condensateur de déparasitage dans l'accessoire son pilote. D) Einführung des Entstörkondensators im Pilotton-zubehör. E) Introduction of the interference suppressor (capacitor) in the sync-pulse accessory. 12.12.77
4		 	F) Introduction d'une diode dans l'accessoire son pilote et quartz pour assurer l'arrêt immédiat de la caméra. Dans l'accessoire son pilote cette diode empêche également le retour du courant qui provoquait un "bip" parasite en fin de séquence. D) Einführung einer Diode in den Pilotton- und Quarzausrüstungen, die das sofortige Anhalten der Kamera gewähren soll. In der Pilotton-ausrüstung verhindert diese Diode ebenfalls den Rückstrom, der am Ende einer Filmszene ein Störsignal (beep) verursachte. E) Introduction of a diode in the sync-pulse and crystal equipments in order to ensure the immediate stopping of the camera. In the sync-pulse equipment, this diode prevents the return current from provoking an interfering signal (beep) at the end of a sequence. 12.77

1. Mains charger (Fig. 1)

The warning lamp (b) must switch off when the accumulator is completely loaded, i.e. at a loading voltage of 14.5 ± 0.2 V.
If necessary, act on potentiometer (a)

Caution : The lamp (b) is special : 6V-0,2A.

2. Sync-Pulse equipment (Fig. 2)

Measure of the tension of the pilot signal 50 or 60 cycles.
Connect the Sync-Pulse outfit to the camera.
Effect the measure on a 40 Ω loading resistance connected directly to points 1 and 2 of plug 5P.

Minimum tension = 0.9V

On the ascilloscope, the curve of the pilot signal may present a slight distortion, as shown in Fig. 2a.

Between points 3 and 4 of plug 5P, there must be a tension of 12V during the clapstick.

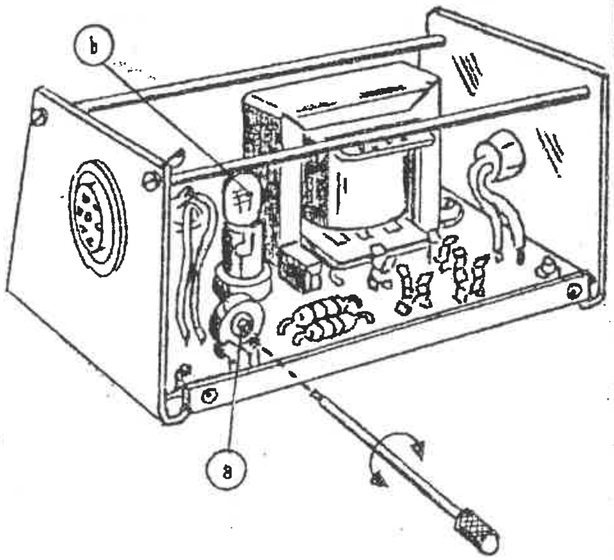
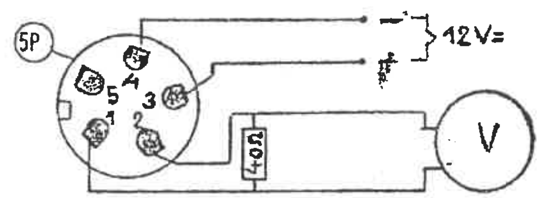


Fig. 1



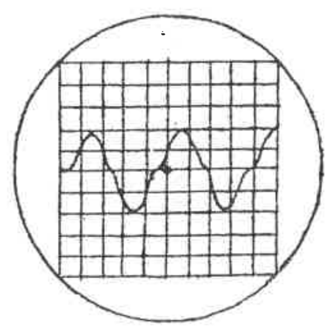
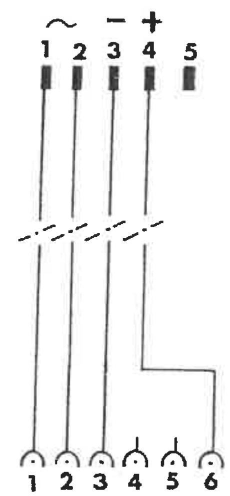


Fig. 2a

Fig. 2

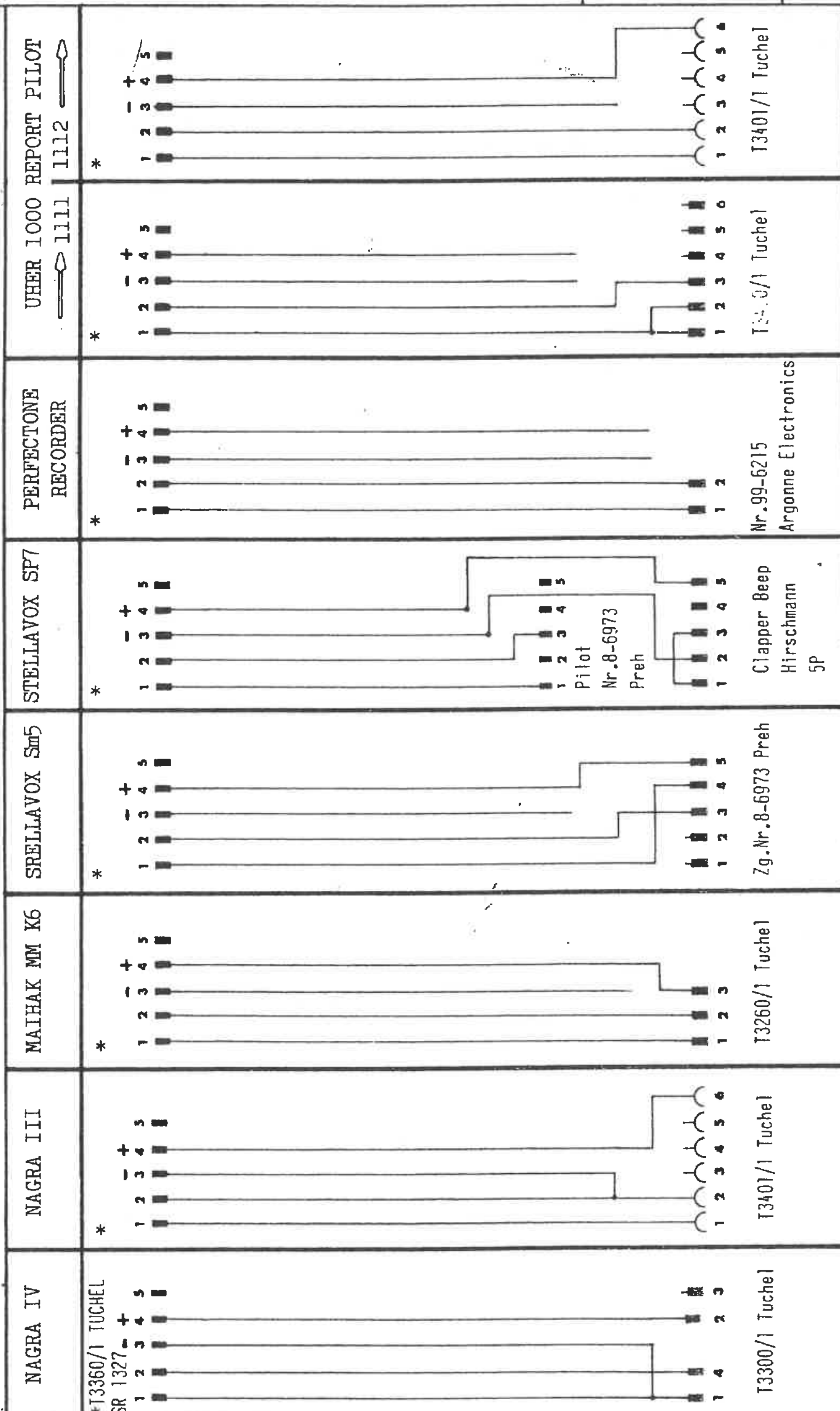
FM	Accessoires Zubehör Accessories	H16 EBM H16...+ES	BOLEX

	Anciennes pièces Alte Teile Former parts	Nouvelles pièces Neue Teile New parts	Observations Bemerkungen Remarks
1		UHER 1200 REPORT PILOT  T 3401/1 Tuchel	F) Schéma correspondant au nouvel enregistreur. D) Schema betr. das neue Tonbandgerät. E) Diagram corresponding to the new tape recorder. 03.75

Accessoires
Zubehör
Accessories

H16EBM
H16...+ESM

BOLEX



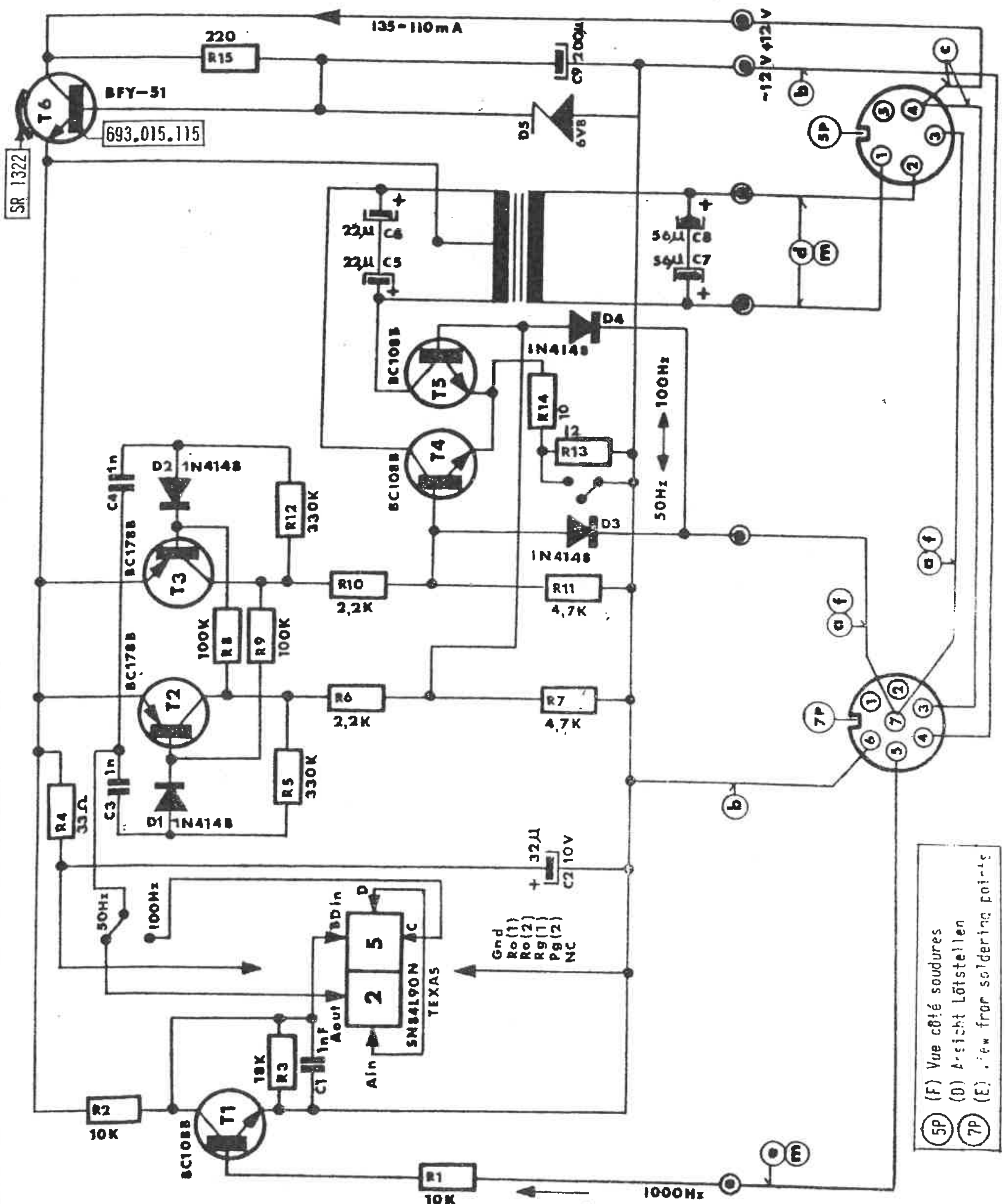
* SOSPI
1 Rose / pink / Rosa
2 Vert pâle / pale green / Hellgrün
3 Vert / green / Grün
4 Rouge / red / Rot
5

Liaisons Son-pilote → Magnétophones
Verbindungen Pilotton → Tonbandgeräte
Connections sync pulse → tape recorders

H3 EBM | 11.72 | * | M I | II

PD	Accessoires Zubehör Accessories	H16EBM H16...+ESM	BOLEX

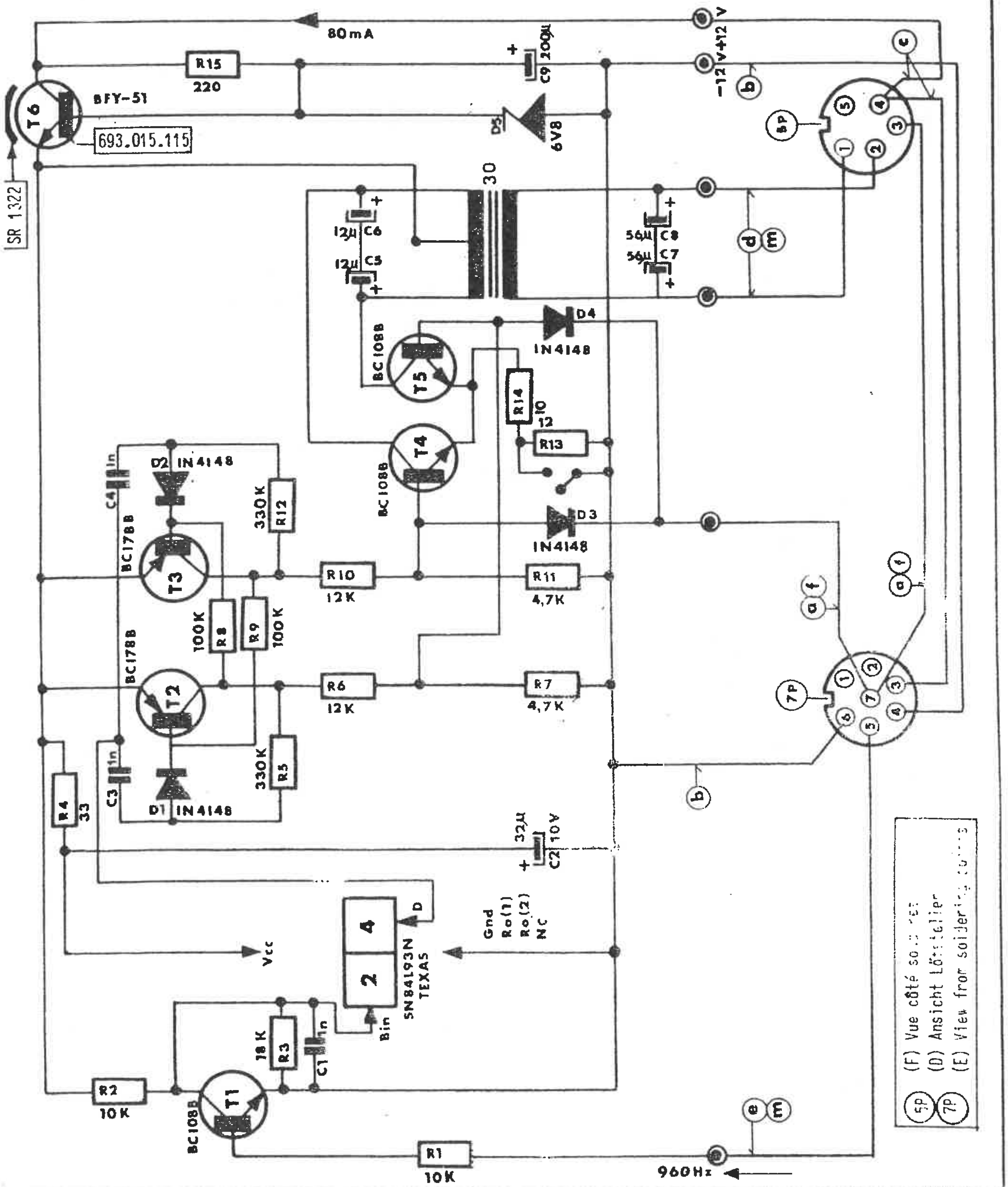
Equipement son pilote	25 i/s	50 Hz	SOLOT	Schéma électrique
Pilottonausrüstung	25 B/s	50 Hz	SOLOT	Elektrisches Schema
Sync-pulse equipment	25 f/s	50 Hz	SOLOT	Electric diagram



H3 EBM	11.72	*		M	2

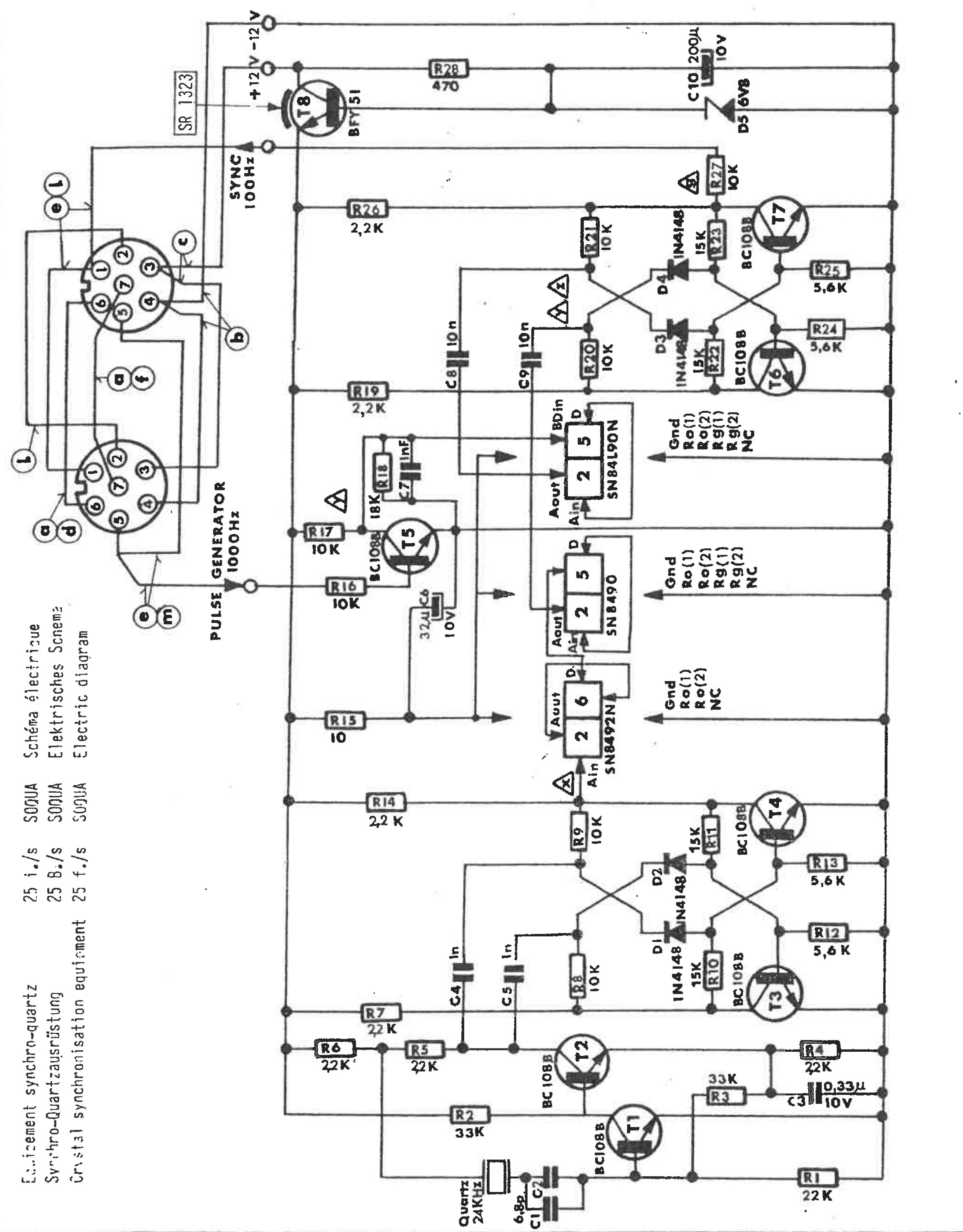
PD	Accessoires Zubehör Accessories	H16EBM H16...+ESM	BOLEX

Equipement son pilote	24 i/s	60 Hz	SOLTO	Schéma électrique
Pilottonausrüstung	24 B/s	60 Hz	SOLTO	Elektrisches Schema
Sync-pulse equipment	24 f/s	60 Hz	SOLTO	Electric diagram



H3 EBM	11.72	*		M	3

PD	Accessoires Zubehör Accessories	H16 EBM H16... +ESM	BOLEX

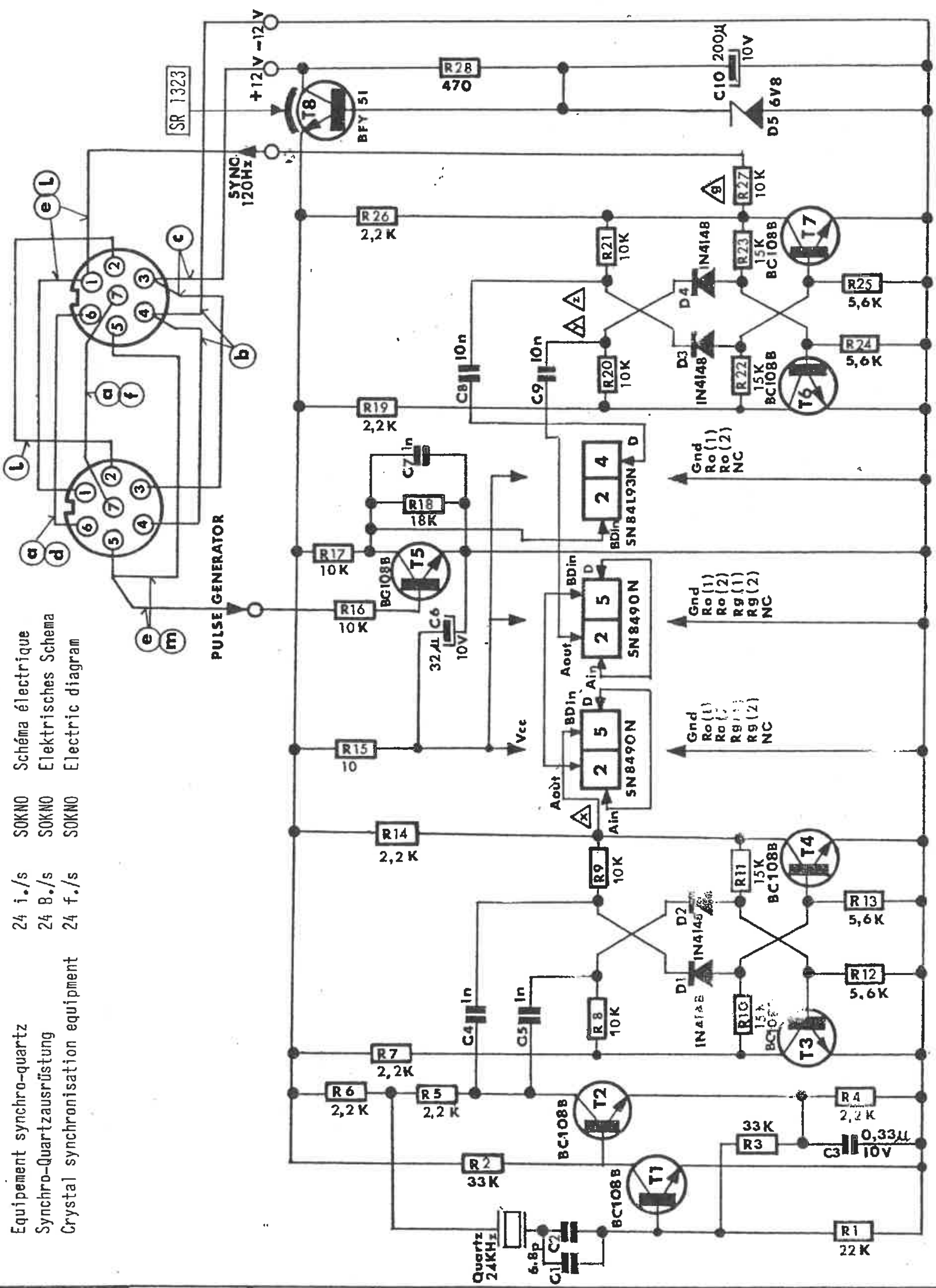


Equipement synchro-quartz 25 i./s SOQUA Schéma électrique
Synchro-Quartzausrüstung 25 B./s SOQUA Elektrisches Schema
Crystal synchronisation equipment 25 f./s SOQUA Electric diagram

PD Accessoires / Zubehör / Accessories

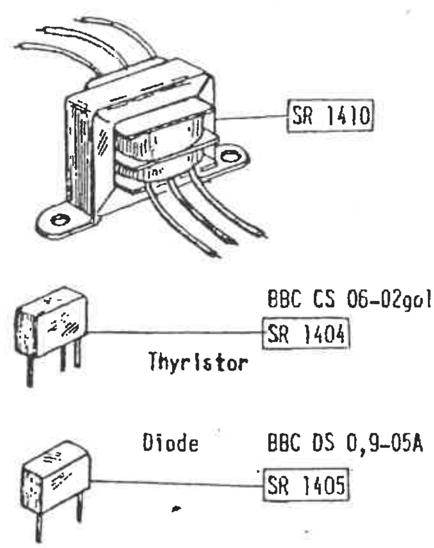
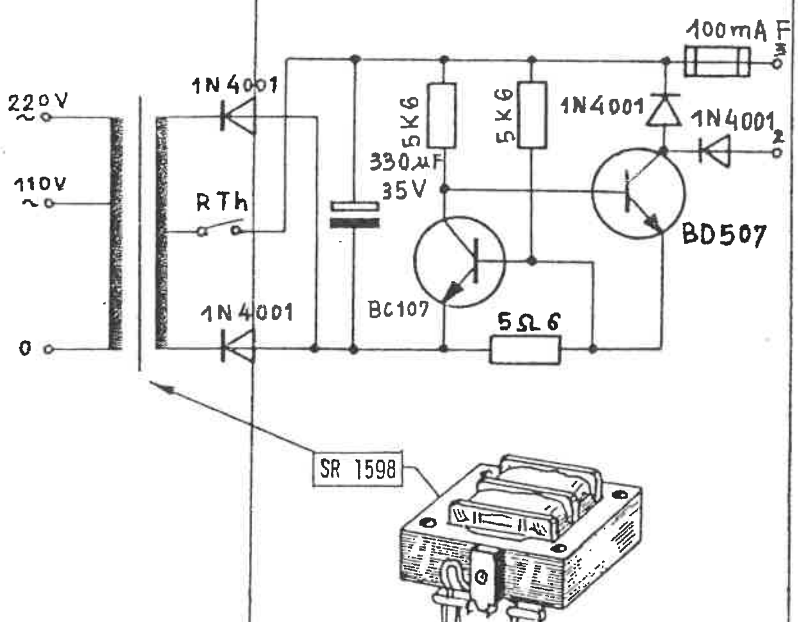
H16EBM
H16... +ESM

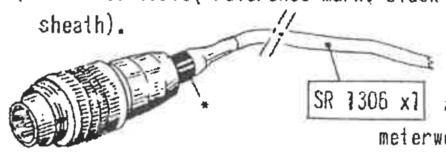
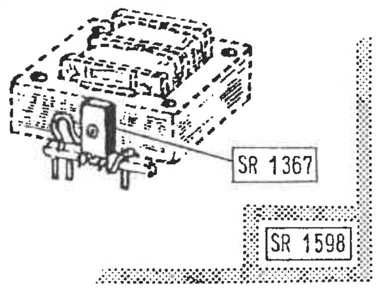
BOLEX



Equipement synchro-quartz 24 i./s SOKNO Schéma électrique
Synchro-Quartzausrüstung 24 B./s SOKNO Elektrisches Schema
Crystal synchronisation equipment 24 f./s SOKNO Electric diagram

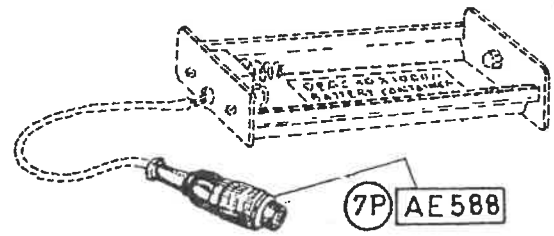
FM	Accessoires Zubehör Accessories	H16SB/SBM H16EBM	BOLEX

Anciennes pièces Alte Teile Former parts	Nouvelles pièces Neue Teile New parts	Observations Bemerkungen Remarks
1	BATOT  	F) Introduction de composants pour le chargeur d'accumulateur BATOT. D) Einführung von Komponenten des Akkuladegeräts BATOT. E) Introduction of components of the mains charger BATOT. 10.74
2	 	F) Introduction de composants pour le chargeur d'accumulateur CHAAV. D) Einführung von Komponenten des Akkuladegeräts CHAAV. E) Introduction of components of the mains charger CHAAV. 12.75

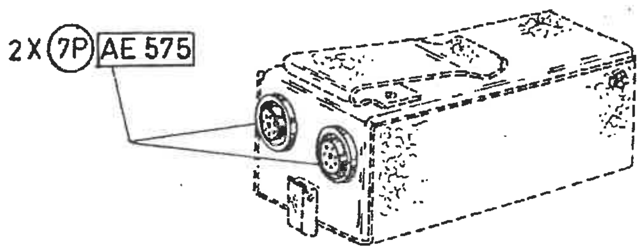
	Anciennes pièces Alte Teile Former parts	Nouvelles pièces Neue Teile New parts	Observations Bemerkungen Remarks
3	SOCCU (0,5 m)	SOCCU (0,5 m) F) Câble blindé(*repère gaine noire). D) Abgeschirmtes Kabel(*Kennzeichen: schwarze Hülle). E) Shielded cable(*reference mark: black sheath).  SR 1306 x1 au m meterweise	F) Nouveau câble de liaison SOCCU avec câble blindé. Il complète l'amélioration apportée sur la caméra H16 EL dès le No 210 878.(Voir H4-FM2-PD-5). D) Neues Verbindungskabel SOCCU mit abgeschirmtem Kabel. Ergänzt die Verbesserung an der Kamera H16 EL ab Nr. 210 878 (siehe H4-FM2-PD-5). E) New connection cable SOCCU with shielded cable. This is in addition to the improvement on camera H16 EL as from serial No. 210 878 (see H4-FM2-PD-5). 07.76
4		 SR 1367 SR 1598	F) Introduction du fusible thermique comme pièce livrable pour le transformateur du chargeur CHAAV. D) Einführung der thermischen Sicherung des Transformers des Akkuladegeräts CHAAV als separates Ersatzteil. E) Introduction of the thermal fuse of transformer of battery charger CHAAV as a spare part. 09.76

PD	Accessoires Zubehör Accessories	H16 EBM H16 SB/SBM	BOLEX

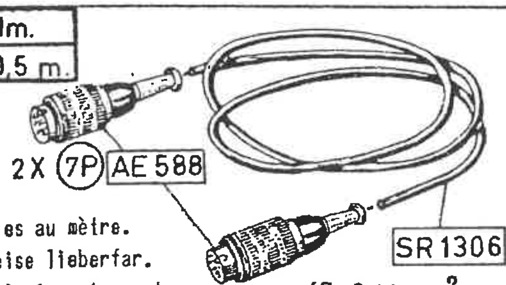
CABAC



COTAC



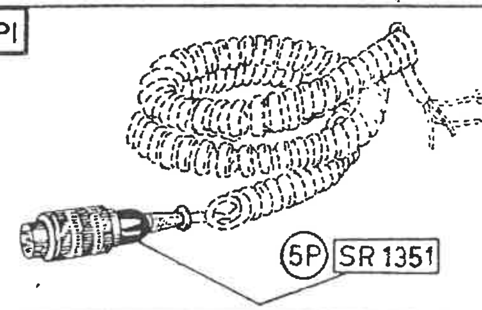
SOCUN 1m.
SOCCU 0,5 m.



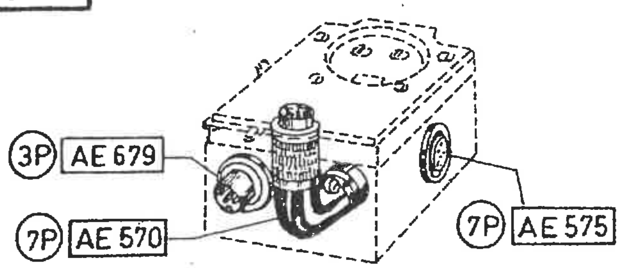
F) Livrables au mètre.
D) Meterweise lieberfar.
E) Available in meter cuts.

(7x0,14 mm²) au m.

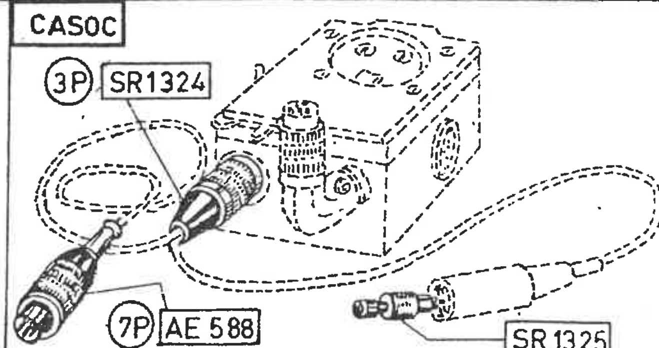
SOSPI



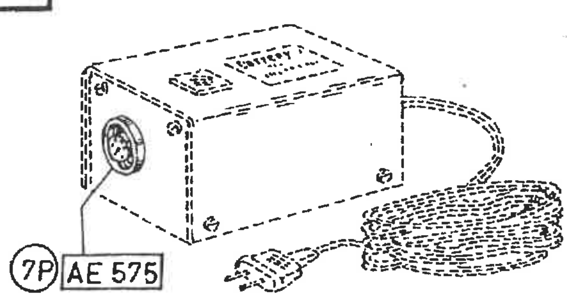
EBSOC



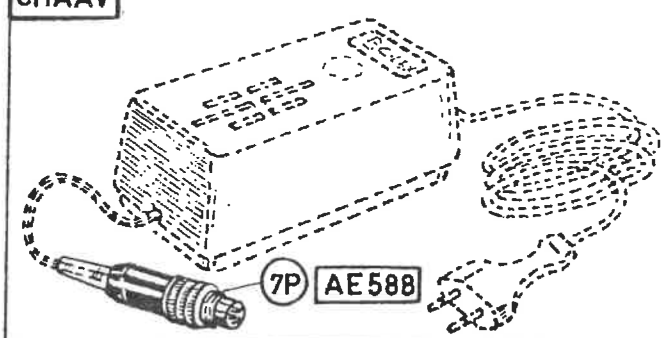
CASOC



BATOT

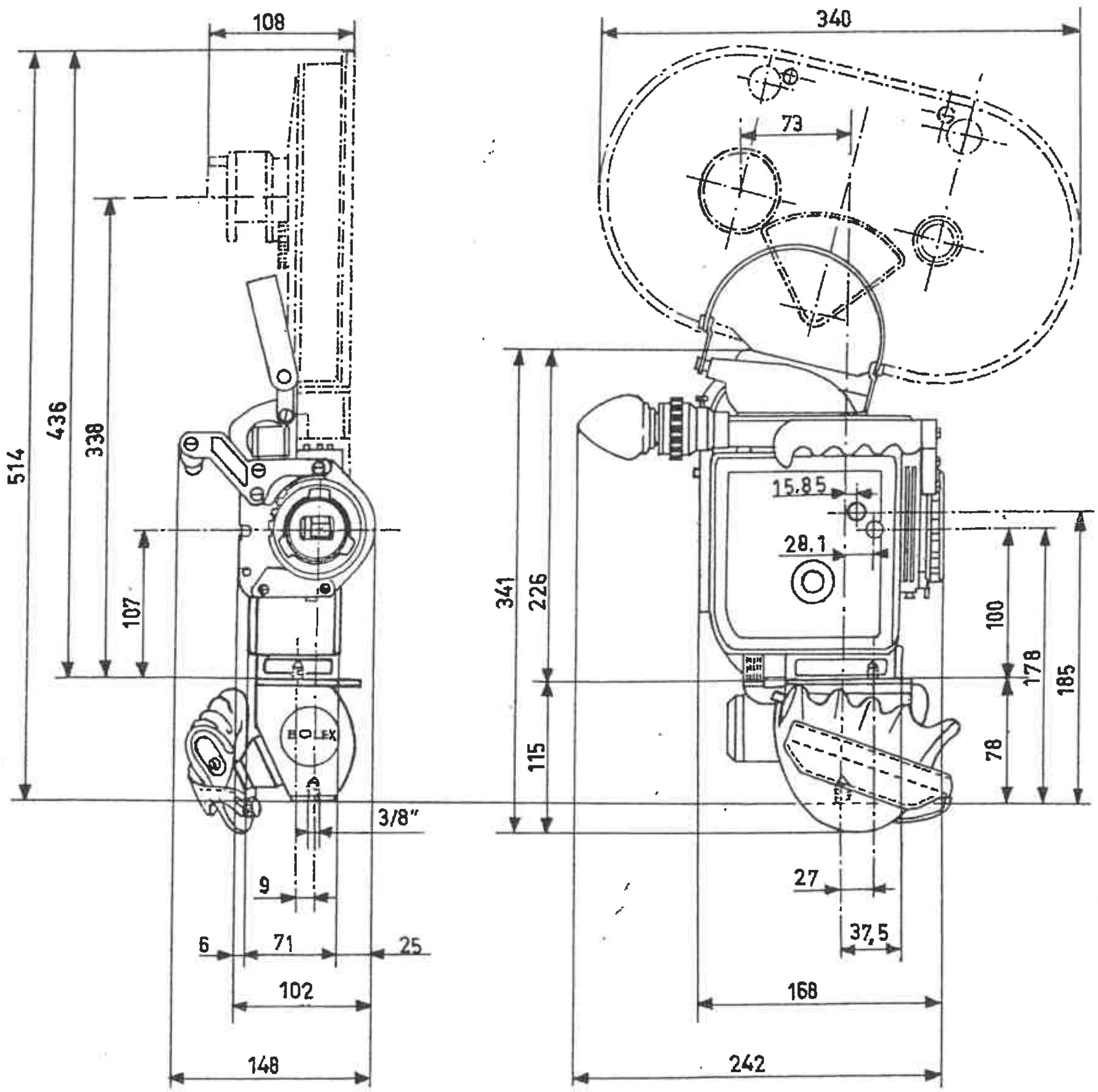


CHAAV



PD	Cotes Masse Dimensions	H16EBM 300 401 ⟹	BOLEX

26,46**



H 3 EBM	12.71	*	** Tirage Auflagemass Flange focal distance	N	1

BOLEX INTERNATIONAL S.A. SAINTE-CROIX (Switzerland)